EtherLink® 10/100 PCI for Complete PC Management Network Interface Cards User Guide

3C905C-TX and 3C905C-TX-M EtherLink 10/100 PCI NICs for Complete PC Management

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About This Guide

This guide describes how to install, configure, and troubleshoot the 3Com® EtherLink® 10/100 PCI for Complete PC Management (3C905C) network interface card (NIC).

This guide is intended for those who install and configure Ethernet NICs. Some familiarity with Ethernet networks and NICs is assumed.

If release notes are shipped with your product and the information there differs from the information in this guide, follow the instructions in the release notes.

Most user guides and release notes are available in Adobe Acrobat Reader Portable Document Format (PDF) or HTML on the 3Com World Wide Web site:

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Conventions

Table 1 and Table 2 list conventions that are used throughout this guide.

Table 1 Notice Icons

Icon	Notice Type	Description
	Information note	Information that describes important features or instructions
	Caution	Information that alerts you to potential loss of data or potential damage to an application, system, or device
	Warning	Information that alerts you to potential personal injury

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Table 2 Text Conventions

Convention	Description
`Screen displays`	This typeface represents information as it appears on the screen.
`Commands`	The word "command" means that you must enter the command exactly as shown and then press Return or Enter. Commands appear in bold. Example: To launch the DOS diagnostics program, enter the following command: **`a: install`**
The words "enter" and "type"	When you see the word "enter" in this guide, you must type something, and then press Return or Enter. Do not press Return or Enter when an instruction simply says "type."
Words in *italics*	Italics are used to: ■ Emphasize a point. ■ Denote a new term at the place where it is defined in the text. ■ Identify menu names, menu commands, and software button names. Examples: From the *Help* menu, select *Contents*. Click *OK*.

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1 INTRODUCTION

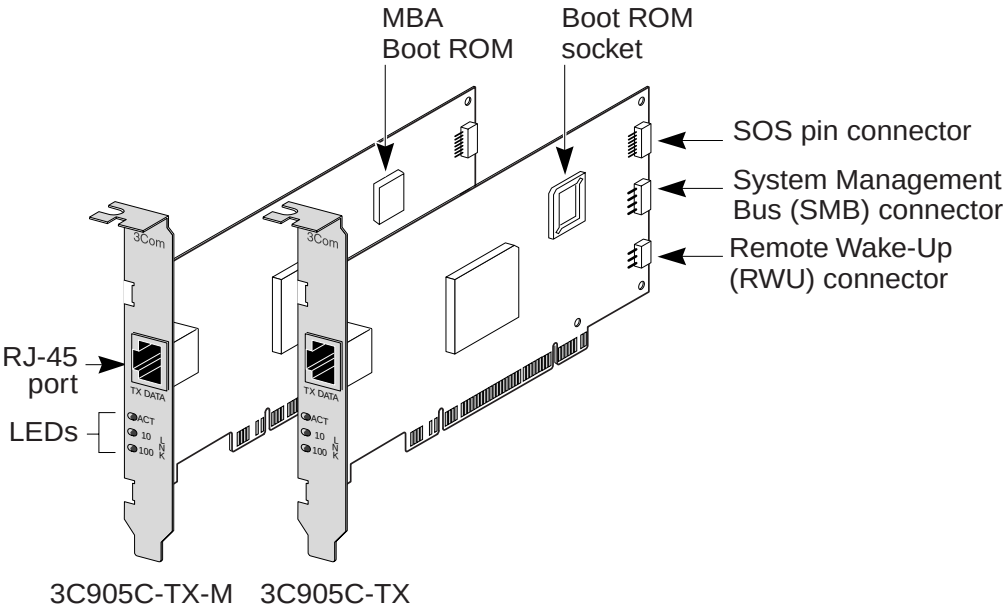
This chapter describes the 3Com® EtherLink® 10/100 PCI for Complete PC Management (3C905C) network interface card (NIC).

3C905C NIC Overview

The 3C905C NIC is a 10/100 Mbps PCI NIC that includes a suite of desktop management features, including Remote Wake-Up, managed PC boot agent, system alerts, workgroup keep-alive, and DMI 2.0 support.

The two versions of the 3C905C NIC are shown in Figure 1 and described in the next section.

Figure 1 3C905C Network Interface Cards



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Features

The 3C905C NIC supports the following features:

- Remote Wake-Up
- Managed PC Boot Agent (MBA) software (integrated as a boot ROM on the 3C905C-TX-M NIC; available separately for installation and use with the 3C905C-TX NIC)
- Dynamic*Access*® software
- Remote system alerts
- Workgroup keep-alive packet
- Desktop Management Interface (DMI) 2.0 and 2.0s
- PCI 2.2
- Wired for Management 2.0
- Advanced Configuration Power Interface (ACPI)
- Parallel Tasking® and Parallel Tasking II technology
- 802.3x Flow Control
- TCP/IP Checksum

For a complete list of the standards that the 3C905C NIC supports, see "Standards Conformance" in Appendix A.

Unless specifically indicated, 3C905C is used throughout this guide to refer to both NICs.

Using Remote Wake-Up

Remote Wake-Up is the ability to remotely power-on a PC for after-hours administration.

Remote Wake-Up support is enabled in one of two ways:

- If your PC is compliant with PCI 2.2, Remote Wake-Up is automatically enabled through the PCI bus. No special installation is required. (See your PC documentation if you are unsure whether your PC is compliant with PCI 2.2.)
- If your PC is not compliant with PCI 2.2, you must connect a Remote Wake-Up cable from the NIC Remote Wake-Up (RWU) connector (see Figure 1) to a 3-pin Remote Wake-Up connector on the PC motherboard. See "Connecting the Remote Wake-Up Cable" in Chapter 2 for instructions.

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Remote Wake-Up Requirements

Your PC or server must have the following items to use Remote Wake-Up:

- BIOS that supports Remote Wake-Up
- PCI 2.2-compliant bus or a 3-pin Remote Wake-Up connector on the PC motherboard and a 5-volt standby power supply unit rated at a minimum of 375 milliamperes

If you are unsure whether your PC meets the requirements listed above, refer to your PC documentation or contact your PC manufacturer.

For more information on Remote Wake-Up, including a list of PCs that currently support this feature, go to the following 3Com World Wide Web site:

`http://www.3com.com/partners/acpi`

Multiple NIC Installations and Remote Wake-Up

To use multiple NICs as Remote Wake-Up NICs in the same PC, the PC must have a power supply that can support multiple Remote Wake-Up devices.

See your PC documentation if you are unsure whether your PC power supply can accommodate more than one Remote Wake-Up device.

Using the Managed PC Boot Agent (MBA) Software

The 3C905C-TX-M NIC has an installed boot ROM (see Figure 1) that contains Managed PC Boot Agent (MBA) software.

A boot ROM with MBA software can be purchased separately for installation and use with the 3C905C-TX NIC.

The MBA adds management capabilities to the NIC by enabling the PC to boot from the server, rather than from its local drive.

This preboot support allows you to use management applications to remotely:

- Install and configure a new PC that has never been connected to the network.
- Upgrade software.

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- Configure or reconfigure multiple systems simultaneously.
- Scan for viruses.
- Back-up hard drives and perform disaster recovery tasks.

For information on configuring the MBA to boot from the network, see "Configuring the Managed PC Boot Agent (MBA)" in Chapter 5.

For detailed information on the MBA, see the *Managed PC Boot Agent User Guide*, located on the MBA Utility diskette.

Using Dynamic*Access* Software

The 3C905C NIC comes with Dynamic*Access* software, advanced network software that improves performance, management, and control of your network.

Dynamic*Access* software adds intelligence to the NIC by integrating the following features:

- Distributed RMON (dRMON) SmartAgents — Enables full RMON reporting on all network segments, including switched networks, without the need to place dedicated RMON probes throughout the network.
- Traffic prioritization (IEEE 802.1p/Q) — Ensures that business-critical and delay-sensitive traffic (such as multimedia applications) has priority over normal data.
- Fast IP—Eliminates router bottlenecks and improves performance in switched networks.
- Efficient multicast control — Prevents flooding of switched networks by multicast applications such as video training, stock quotes, or online news.

Dynamic*Access* software can be installed on a PC running Windows 95, Windows 98, or Windows NT. See Appendix B for more information.

For detailed information on Dynamic*Access* software, go to the following 3Com World Wide Web site:

`http://www.3com.com/dynamicaccess`

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Using the Workgroup Keep-Alive Packet

The 3C905C NIC can transmit a workgroup keep-alive packet periodically while the PC is in a sleep state. This packet prevents the PCs workstation address from being aged-out of switch and router tables.

For instructions on enabling or disabling the workgroup keep-alive packet, see "Configuring the Workgroup Keep-Alive Packet" in Appendix D.

Using Remote System Alerts

The 3C905C NIC can be configured to continuously monitor the PC and transmit a remote system alert to an alert target management station when a specific event, such as a power problem or a case intrusion, is detected.

Remote System Alerts Requirements

To generate remote system alerts:

- The 3C905C NIC must be connected to the PC motherboard using the NIC SOS or SMBus (SMB) connector.

  See your PC documentation or contact your PC manufacturer if you are unsure whether the NIC can be connected (or already is connected) to the PC motherboard using one of these connectors.

- The alert target management station that is to receive the alerts must have software that supports the Platform Event Trap Format (PETF) specification for remote system alerts.

  See your management station software documentation if you are unsure whether it supports the PETF specification, the packet format used by the 3C905C NIC.

Supported Remote System Alerts

A PC can support a maximum of seven remote system alerts. The remote system alerts that are supported by your PC depend upon your PCs configuration.

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Using Desktop Management Interface (DMI) 2.0

The 3C905C NIC supports DMI 2.0 and 2.0s, which enables managed PCs and net PCs to report details about themselves and their peripheral devices across the network to a DMI 2.0-compliant management application.

A network administrator can then use this information to configure and manage a client or server PC remotely.

For instructions on installing the 3Com DMI Agent, see Appendix C.

For more detailed information on DMI, go to the following 3Com World Wide Web site:

http://www.3com.com/managedpc

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2 NETWORK INTERFACE CARD INSTALLATION

This chapter describes how to install the 3C905C NIC in your PC and connect it to an Ethernet or Fast Ethernet network.

CAUTION: *Do NOT physically install the NIC in your PC until you have run the preinstallation program, as described in "Running the Preinstallation Program" later in this chapter.*

Overview

Table 3 provides an overview of how to install the 3C905C NIC, depending on your PC configuration.

Table 3 Installation Overview

Installation Task	Instructions
Installing the NIC in a new PC	To install the 3C905C NIC in a new PC or in a PC that never has had a NIC installed: **1** Run the NIC preinstallation program *before* installing the NIC in the PC, as described in this chapter. **2** Install the NIC in the PC and connect it to the network, as described in this chapter. **3** Install the NIC driver and software. See Chapter 3 or Chapter 4 for instructions.
Installing multiple NICs	To install multiple 3C905C NICs in a Windows 95/98 or Windows NT 4.0 PC, follow the instructions in "Installing Multiple NICs" in Chapter 3. To install multiple 3C905C NICs in a NetWare server, follow the instructions in "Multiple NICs" in Chapter 4.
Replacing an installed NIC	To install the 3C905C NIC in a PC in which a NIC has previously been installed: **1** Remove the drivers and the NIC *before* installing the 3C905C NIC in the PC. See "Removing NIC Software" in Chapter 6 for instructions. **2** Install the 3C905C NIC in the PC, following the instructions in "Installing the NIC in a new PC" earlier in this table.

(continued)

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Table 3 Installation Overview (continued)

Upgrading Windows 95 to Windows 98	To upgrade a PC from Windows 95 to Windows 98 in which a 3C90x NIC has already been installed, follow the instructions in the WIN98.TXT file located in the HELP directory on *EtherDisk* diskette 3.
Updating *EtherDisk* software	To update *EtherDisk* 4.x or earlier software to *EtherDisk* 5.x software, follow the instructions in the text file appropriate for your operating system in the HELP directory on *EtherDisk* diskette 3.

Preparing for Installation

Before you install the NIC in your PC, make sure that you have the following items:

- 3C905C NIC
- 3Com *EtherDisk* diskettes 1, 2, and 3
- Remote Wake-Up cable (This cable is optional. Install it only if you want to use Remote Wake-Up and your PC is not compliant with PCI 2.2. Contact your PC manufacturer for the Remote Wake-Up cable.)
- SOS or SMBus cable (This cable is optional. Install it only if you want to use remote system alerts and your PC has a matching connector on its motherboard. Contact your PC manufacturer for cabling and installation instructions.)

If the 3C905C NIC or the *EtherDisk* diskettes are damaged or missing, contact your shipper or network supplier.

You also need to know the following about your network environment:

- The kind of network cabling that is used to connect to the network at your site (10BASE-T or 100BASE-TX).
- Your network protocol (IPX, NetBEUI, or TCP/IP).

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Running the Preinstallation Program

Before you physically install the NIC in your PC, you must run the following preinstallation program to properly set up your system environment.

CAUTION: *If you do not run the preinstallation program, the NIC driver and software will not be installed correctly.*

To run the preinstallation program:

1. **Do not install the NIC in the PC.**
2. **Turn on the power to the PC and start Windows.**
3. **Insert *EtherDisk* diskette 1 in drive A.**
4. **From the Windows *Start* menu, select *Run*.**
5. **Run the preinstallation program. Enter:**

   `a:\preinstl`
6. **After the preinstallation program finishes, turn off the power to the PC and remove *EtherDisk* diskette 1.**

   The next step is to install the NIC in the PC.

Inserting the NIC

The following instructions apply to installing the NIC in most PCs. If these instructions are not appropriate for your PC, refer to the documentation that accompanied your PC.

CAUTION: *Do NOT install the NIC in your PC until you have run the preinstallation program, as described in the previous section, "Running the Preinstallation Program."*

Before handling the NIC, touch the bare metal case of your PC to discharge static electricity from your body. While you are handling the NIC, wear a wrist strap grounded to the PC chassis.

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To install the NIC in your PC:

1 **Make sure that you have run the preinstallation program, as described in the previous section.**

2 **Remove all jewelry from your hands and wrists. Use only insulated or nonconducting tools.**

3 **Make sure that the power to the PC is turned off and that the power cord is unplugged.**

4 **Remove the cover from your PC.**

5 **Locate an empty, nonshared bus mastering PCI slot and remove the corresponding slot cover. Save the screw.**

Do not install the NIC in a *shared* PCI slot. Avoid any PCI slot next to an ISA slot. This is often a shared slot and does not support bus mastering.

If you do not know how to identify a PCI slot, check your PC documentation or ask your system administrator.

If you are planning to install the Remote Wake-Up cable or a cable for the SOS or SMBus connector, choose an empty PCI slot that is close to the matching connector on the PC motherboard.

6 **Carefully insert the NIC into the empty PCI slot (see Figure 2). Press firmly to ensure that the NIC is fully seated in the slot.**

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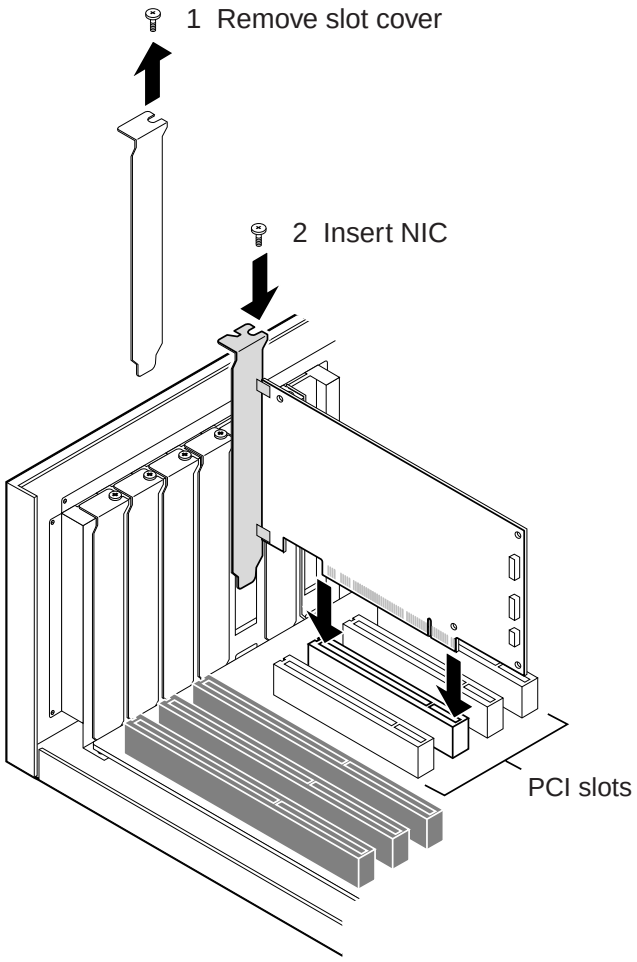
Figure 2 Installing the NIC



7 Secure the NIC with the screw you removed in step 5.

If you want to install the Remote Wake-Up cable, go to the next section, "Connecting the Remote Wake-Up Cable" to continue the installation. If you want to connect a cable from the SOS or SMBus connector, see your PC documentation or contact your PC manufacturer for instructions.

If you do not want to connect a cable, continue with step 8.

8 Replace the PC cover and plug in the power cord.

Do not turn on the power to the PC.

9 Go to "Connecting to the Network" later in this chapter.

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Connecting the Remote Wake-Up Cable

This section describes how to connect the Remote Wake-Up cable from the NIC to the PC motherboard.

Contact your PC manufacturer for the Remote Wake-Up cable.

Connecting the Remote Wake-Up cable is optional. Connect this cable only if you want to use this feature and your PC has the following items:

- 3-pin Remote Wake-Up connector on the PC motherboard
- 5-volt standby power supply unit rated at a minimum of 375 milliamperes
- BIOS that supports Remote Wake-Up

If your PC is compliant with PCI 2.2, Remote Wake-Up is automatically enabled through the PCI bus. You do not need to connect the Remote Wake-Up cable.

WARNING: *Make sure that the PC power cord is unplugged. Only properly trained and authorized personnel should perform service. Contact your PC manufacturer for information about safe service techniques.*

To connect the Remote Wake-Up cable:

1 **Make sure that the NIC is properly installed in a PCI slot.**

2 **Insert the Remote Wake-Up cable into the RWU connector on the NIC (see Figure 3).**

Twist the cable twice before attaching the cable to the PC.

3 **Attach the other end of the cable to the connector on the PC motherboard (see Figure 3).**

Refer to your PC documentation if you need help locating the connector.

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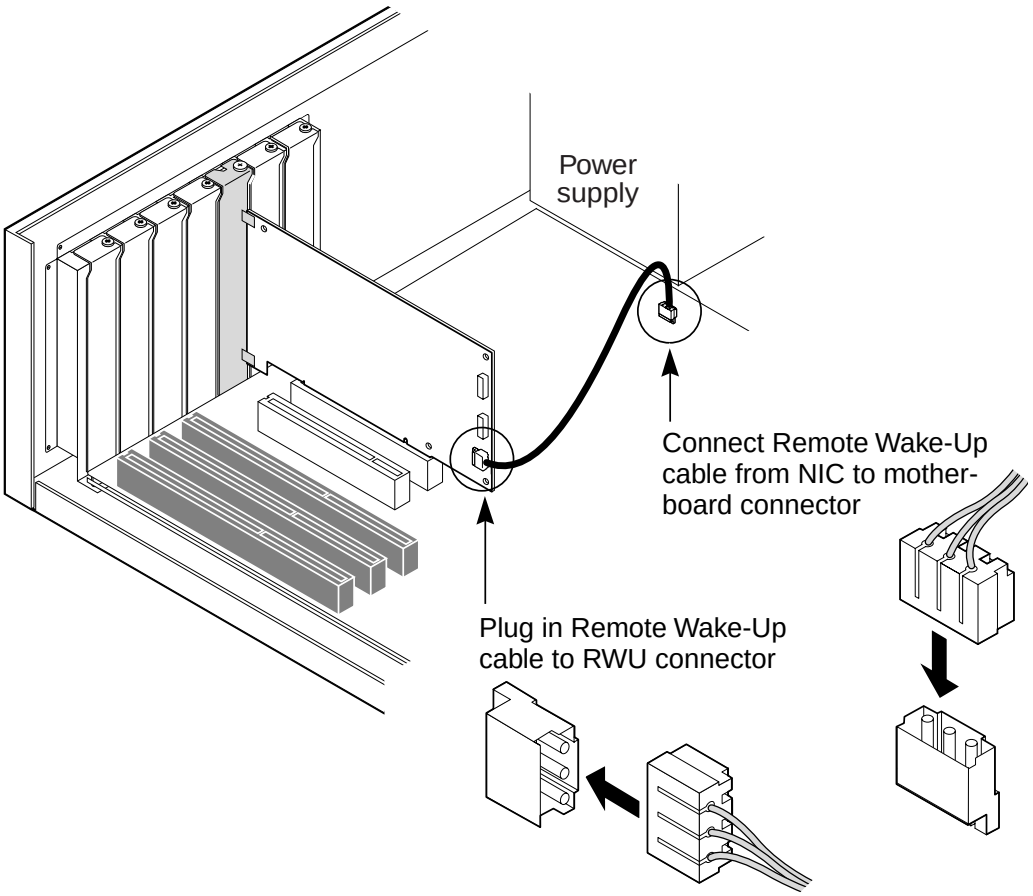
Figure 3 Connecting the Remote Wake-Up Cable


Power supply
Connect Remote Wake-Up cable from NIC to mother-board connector
Plug in Remote Wake-Up cable to RWU connector

4 Replace the PC cover and plug in the power cord.

Do not turn on the power to the PC.

5 Go to the next section, "Connecting SOS or SMBus Cables for Remote System Alerts" or go directly to the following section, "Connecting to the Network."

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Connecting SOS or SMBus Cables for Remote System Alerts

Connecting the SOS or SMBus cables is optional, and requires a matching connector on your PC motherboard. Connect one of these cables only if you want to use Remote System Alerts and if your PC supports this feature.

Contact your PC manufacturer for these cables.

To connect the SOS or SMBus cable for Remote System Alerts, confirm that your PC supports one of these cables and follow the instructions provided with the PC documentation.

Connecting to the Network

This section describes how to connect the 3C905C NIC RJ-45 port to an Ethernet or Fast Ethernet network.

The RJ-45 port provides a 10 Mbps or 100 Mbps connection automatically, depending on the speed of the connected hub or switch.

Table 4 shows the cable requirements and maximum network cable lengths for the 3C905C NIC.

Table 4 Cable Specifications

Network Environment	Cable Required	Maximum Cable Length
10 Mbps (10BASE-T)	Category 3, 4, or 5 unshielded twisted-pair	100 m (328 ft)
100 Mbps (100BASE-TX)	Category 5 unshielded twisted-pair	100 m (328 ft)

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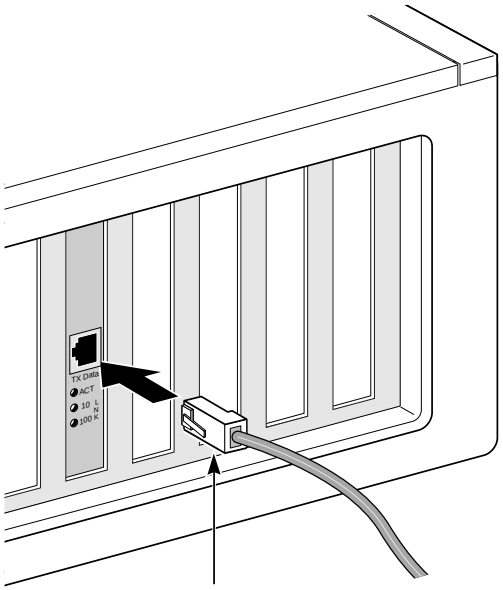
To connect the 3C905C NIC to a 10 Mbps Ethernet or 100 Mbps Fast Ethernet network:

1 **Plug the RJ-45 connector on the twisted-pair network cable into the RJ-45 port on the NIC backplate (see Figure 4).**

Figure 4 Connecting to the RJ-45 Port



2 **Connect the other end of the network cable to an active network port.**

The next step is to install the NIC driver and software. Go to the appropriate chapter for your operating system.

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3 WINDOWS 95/98 AND WINDOWS NT DRIVER INSTALLATION

This chapter describes how to install the NIC driver and software on a PC running Windows 95, Windows 98, Windows NT 4.0, or Windows NT 3.51.

To obtain the latest shipping version of a driver, contact your PC manufacturer.

Overview

You install the NIC driver and software using the *EtherDisk* diskettes after you have run the preinstallation program and installed the NIC in your PC, as described in Chapter 2.

The NIC driver can be used in both Microsoft and NetWare network environments.

Do not use the 3Com Intelligent Auto Install software to install the NIC driver under Windows 95, Windows 98, or Windows NT. The Intelligent Auto Install software is for Windows 3.x and DOS clients connecting to a NetWare server. See Chapter 4 for more information.

Installing the Driver

To install the NIC driver and software, follow the steps in the section appropriate for your operating system.

Windows 95

If you encounter problems during the installation, see the W95NDIS.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.

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- Make sure that you have the Windows 95 installation files. These files may be on a CD or diskettes, or they may have been copied to your hard drive when Windows 95 was installed on your PC.

To install the NIC driver and software on a PC running Windows 95:

1 Turn on the power to the PC.

Windows 95 detects the NIC.

Depending on the version of Windows 95 that you have installed, the New Hardware Found dialog box appears or the Update Device Driver Wizard starts.

If the New Hardware Found dialog box appears:

a Select *Driver from disk provided by hardware manufacture*r, and then click *OK*.

b Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.

c Go to step 2 when prompted for *EtherDisk* diskette 2.

If the Update Device Driver Wizard starts:

a Insert *EtherDisk* diskette 1 in drive A, and then click *Next*.

Windows finds the driver and asks if you want to use this driver.

b Click *Finish, and then click OK when prompted for EtherDisk diskette 1*.

c Go to step 2 when prompted for *EtherDisk* diskette 2.

2 Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.

Files are copied.

- If this is the first time that networking is being installed on your PC, the Identification tab of the Network screen appears. Go to step 3.
- If networking has already been installed, you are prompted for the Windows 95 CD. Go to step 4.

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3 In the specified fields of the Identification tab screen, enter the following information, and then click *OK*:

- Computer Name — Identifies the PC on the network for other users. This entry must be a unique name of 15 characters or fewer, containing no spaces.
- Workgroup — Identifies the group (for example, your department name) to which your PC belongs. If you belong to a peer-to-peer network, this entry must be exactly the same for all the PCs in your network.
- Computer Description — Displays additional details to other users on the network about this PC. For example, you could specify that the PC has a printer attached. Filling in this field is optional.

4 Insert the Windows 95 CD or diskette, and then click *OK*.

If you do not have the Windows 95 CD or diskette, but the Windows 95 installation files are on your hard drive, click *OK. Enter the directory in the Copy Files From entry box (usually C:\WINDOWS\OPTIONS\CABS)*, and then click *OK*.

Files are copied. You are prompted for *EtherDisk* diskette 2.

5 Make sure that *EtherDisk* diskette 2 is in drive A, and then click *OK*.

Files are copied. You are prompted to restart the PC.

6 Remove *EtherDisk* diskette 2 from drive A, and then click *Yes* to restart the PC.

You must restart the PC to complete the installation.

The installation is complete. Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.

After Windows restarts, double-click the Network icon in the Windows Control Panel and make sure that the configuration settings are properly set for your network environment. Contact your system administrator for assistance.

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Windows 98

If you encounter problems during the installation, see the WIN98.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.
- Make sure that you have the Windows 98 installation files. These files may be on a CD or diskettes, or they may have been copied to your hard drive when Windows 98 was installed on your PC.

To install the NIC driver and software on a PC running Windows 98:

1 Turn on the power to the PC.

Windows 98 detects the NIC. The Add New Hardware Wizard (Figure 5) starts.

Figure 5 Add New Hardware Wizard

Add New Hardware Wizard
This wizard searches for new drivers for:
PCI Ethernet Controller
A device driver is a software program that makes a hardware device work.
< Back
Next >
Cancel

2 Insert *EtherDisk* diskette 1 in drive A, and then click *Next*.

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3 **Select *Search for the best driver for your device (Recommended)*, and then click *Next*.**

4 **Select *Floppy disk drives*, and then click *Next*.**

Windows finds the driver file for the device.

5 **Click *Next*.**

Files are copied.

If the Insert Disk dialog box appears, prompting you to insert EtherDisk diskette 1, click OK.

You are prompted for *EtherDisk* diskette 2.

6 **Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.**

Files are copied. You are prompted for the Windows 98 CD.

7 **Insert the Windows 98 CD or diskette, and then click *OK*.**

If you do not have the Windows 98 CD or diskette, but the Windows 98 installation files are on your hard drive, click *OK. Enter the directory in the Copy Files From entry box (usually C:\WINDOWS\OPTIONS\CABS)*, and then click *OK*.

Files are copied. You are prompted for *EtherDisk* diskette 2.

8 **Make sure that *EtherDisk* diskette 2 is in drive A, and then click *OK*.**

Files are copied.

9 **Click *Finish*.**

You are prompted to restart the PC.

10 **Remove *EtherDisk* diskette 2 from drive A, and then click *Yes* to restart the PC.**

You must restart the PC to complete the installation.

The installation is complete. Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.

After Windows restarts, double-click the Network icon in the Windows Control Panel and make sure that the configuration settings are properly set for your network environment. Contact your system administrator for assistance.

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Windows NT 4.0

If you encounter problems during the installation, see the WINNT.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.

To install the NIC driver and software on a PC running Windows NT 4.0:

1 **Turn on the power to the PC.**

2 **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**

The Network window appears.

3 **Click the Adapters tab.**

If networking has not been installed on your PC before, Windows NT asks you if you want to install networking. Click *Yes*. See the WINNT.TXT file located on *EtherDisk* diskette 3 or your Windows NT documentation for instructions.

4 **Click *Add*.**

The Select Network Adapter dialog box appears.

5 **Click *Have Disk*.**

The Insert Disk dialog box appears.

6 **Insert *EtherDisk* diskette 1 in drive A. Make sure that A:\ appears in the entry box, and then click *OK*.**

The OEM Option dialog box appears.

7 **Make sure that the *3Com EtherLink NIC* is selected, and then click *OK*.**

Files are copied. You are prompted for *EtherDisk* diskette 2.

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8 Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.

Files are copied. The Adapters tab of the Network screen appears. The name of the installed NIC appears in the list of network adapters.

9 Click *Close*.

- If the Microsoft TCP/IP Properties screen appears, enter the requested information for your network environment. Refer to your system administrator or the Windows NT documentation for assistance.
- If the Microsoft TCP/IP Properties screen does not appear, the installation is complete.

10 Remove *EtherDisk* diskette 2 from drive A, and then restart the PC.

The installation is complete. Go to "Verifying Successful Installation" later in this chapter to confirm that the NIC is properly installed.

Windows NT 3.51

If you encounter problems during the installation, see the WINNT.TXT file located in the HELP directory on *EtherDisk* diskette 3 for troubleshooting tips.

Before installing the NIC driver and software:

- Make sure that you have run the preinstallation program, as described in Chapter 2.
- Make sure that the NIC is installed in the PC and that it is connected to the network.

To install the NIC driver and software on a PC running Windows NT 3.51:

1 Turn on the power to the PC.

2 In the Main window of the Program Manager, double-click the Control Panel icon and then the Network icon.

The Network Settings window (Figure 6) appears.

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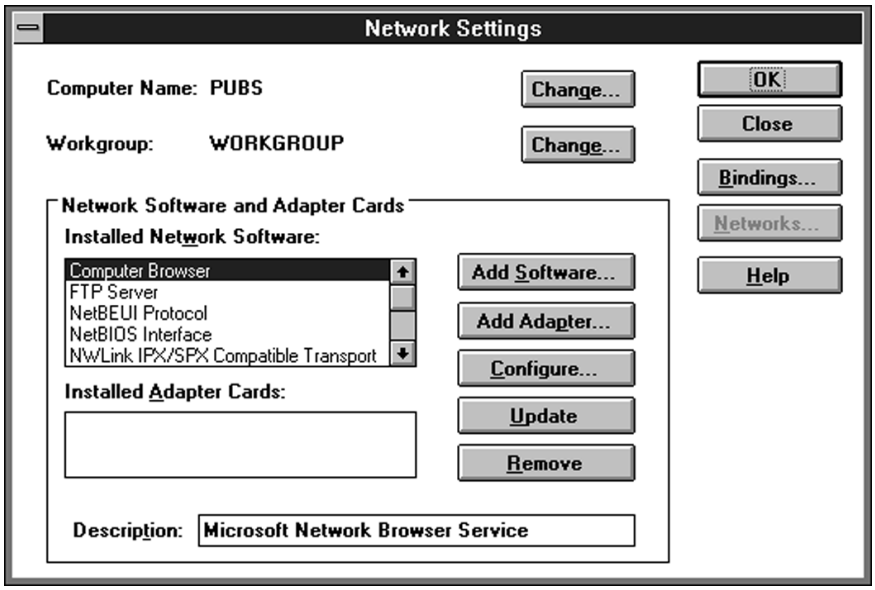
Figure 6 Network Settings Window



3 Click *Add Adapter.*

The Add Network Adapter window appears.

4 Open the Network Adapter Card list box, and scroll down and select *<Other> Requires disk from manufacturer.*

5 Click *Continue*.

The Insert Disk dialog box appears.

6 Insert *EtherDisk* diskette 1 in drive A. Make sure that A:\ appears in the entry box, and then click *OK*.

The Select OEM Option window appears.

7 Make sure that the *name of the NIC* is selected, and then click *OK*.

Files are copied. You are prompted for *EtherDisk* diskette 2.

8 Remove *EtherDisk* diskette 1 from drive A, insert *EtherDisk* diskette 2, and then click *OK*.

Files are copied. The Network Settings window appears. The name of the installed NIC appears in the list of installed adapter cards.

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9 Click *OK*.

- If the TCP/IP Configuration screen appears, enter the requested information for your network environment. Refer to your system administrator or the Windows NT documentation for assistance.
- If the TCP/IP Configuration screen does not appear, the installation is complete.

10 Remove *EtherDisk* diskette 2 from drive A, and then restart the PC.

The installation is complete. Go to the next section, "Verifying Successful Installation," to confirm that the NIC is properly installed.

Verifying Successful Installation

This section describes how to verify that the NIC and its software are properly installed on your PC.

Windows 95 and Windows 98

To verify successful NIC installation on a PC running Windows 95 or Windows 98:

1 Open the Windows *Start* menu, select *Settings*, and then select *Control Panel*.

2 Double-click the System icon, and then select the Device Manager tab.

3 Double-click *Network adapters* and make sure that the name of the 3Com EtherLink NIC appears.

If a red X or a yellow exclamation point (!) appears next to the name of the NIC, the installation was not successful. See "Troubleshooting the Installation" and "Frequently Asked Questions" in Chapter 6 for troubleshooting help.

Windows NT 4.0

To verify successful NIC installation on a PC running Windows NT 4.0:

1 Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.

2 Select the Adapters tab.

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3 **Make sure that the name of the NIC appears in the list of network adapters.**

If the name of the NIC does not appear in the list of network adapters, the installation was not successful. See Chapter 6 for troubleshooting help.

Windows NT 3.51

To verify successful NIC installation on a PC running Windows NT 3.51:

1 **Double-click the File Manager icon.**

2 **From the *Disk* menu, select *Connect Network Drive*.**

The presence of network server names confirms successful installation.

If you cannot connect a network drive, the installation was not successful. See Chapter 6 for troubleshooting help.

Installing Multiple NICs

This section describes how to install multiple 3C905C NICs in a Windows 95, Windows 98, or Windows NT 4.0 PC.

You must use these procedures to install multiple NICs. Failure to follow these procedures may lead to problems requiring you to reinstall your operating system.

Windows 95 and Windows 98

To install multiple 3C905C NICs in a PC running Windows 95 or Windows 98, install and configure each NIC individually, following these steps:

1 **Run the preinstallation program before installing the NICs in the PC, as described in Chapter 2.**

2 **Install the first NIC in your PC and connect it to the network, as described in Chapter 2.**

CAUTION: *Do not physically install the second NIC in your PC until you complete the NIC driver installation for the first NIC, following the steps below.*

3 **Turn on the power to the PC and start Windows.**

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4 **When Windows detects the NIC and prompts you for a diskette, insert *EtherDisk* diskette 1 in drive A, and then click *OK*.**

5 **Follow the prompts on the screen to install the NIC driver and software.**

See the "Windows 95" or "Windows 98" section earlier in this chapter for instructions.

6 **After the NIC driver and software are installed, restart the PC.**

7 **After the PC restarts, exit Windows and turn the power off to the PC. Make sure that the PC is unplugged.**

8 **Install the second NIC in your PC and connect it to the network.**

9 **Plug in the PC power cord, turn on the power to the PC, and then start Windows.**

Windows detects the second NIC. The second NIC uses the same driver and software as the first NIC.

When Windows starts, the second NIC appears under *Network adapters* in the Device Manager.

10 **Repeat the process for each additional NIC to be installed.**

Windows NT 4.0

To install multiple 3C905C NICs in a PC running Windows NT 4.0:

1 **Install the NICs in your PC and connect each to the network.**

2 **Turn on the power to the PC and start Windows NT.**

3 **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**

The Network screen appears.

4 **Select the Adapters tab.**

5 **Click *Add*.**

The Select Network Adapter screen appears.

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6 **Click *Have Disk*.**

7 **Insert *EtherDisk* diskette 1 in drive A, make sure that A:\ appears in the entry box, and then click *OK*.**

The Select OEM Option screen appears with the name of one of the NICs selected. Only one NIC appears on this screen.

8 **Click *OK*.**

Files are copied.

9 **Insert *EtherDisk* diskette 2 when prompted.**

Files are copied. The Network screen appears with the name of the first installed NIC.

10 **Close the Network screen.**

If you are prompted for network information, enter the requested information.

11 **Restart the PC.**

12 **When Windows NT starts, repeat steps 3 through 11 for each NIC that is installed in the PC.**

You will not be prompted for EtherDisk *diskette 2 when you install the driver and software for the second NIC.*

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4 NetWare Client and Server Driver Installation

This chapter describes how to install the Novell NetWare client driver for DOS, Windows 3.1, or Windows for Workgroups and the NetWare server driver.

To install the network drivers for Windows 3.1x, Windows for Workgroups, or DOS in a non-NetWare environment, see the appropriate text files in the HELP directory on EtherDisk diskette 3.

To obtain the latest shipping version of a driver, contact your PC manufacturer.

Installing the NetWare Client Driver

The NetWare client driver enables PCs running DOS, Windows 3.x, or Windows for Workgroups to access resources on a NetWare 3.1x or 4.x network.

Use the 3Com Intelligent Auto Install software to install the client software and drivers for Novell NetWare 3.1x or 4.x.

Do not use the Intelligent Auto Install software if you are running Windows 95, Windows 98, or Windows NT. See Chapter 3 for procedures to install network drivers under these operating systems.

About 3Com Intelligent Auto Install Software

Intelligent Auto Install software automatically configures your NIC and PC for use as a NetWare client.

The Intelligent Auto Install software creates a new AUTOEXEC.BAT file and saves the old file as AUTOEXEC.3CM. It also creates a new CONFIG.SYS file and saves the old file as CONFIG.3CM.

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Intelligent Auto Install Requirements

To use the Intelligent Auto Install program:

- Make sure that your PC has only one 3C905C NIC installed.
- Make sure that you are using NetWare 3.x or 4.x as your network operating system.
- Make sure that your PC has at least 1 MB of available hard drive space.

If you have more than one 3C905C NIC installed, follow the NetWare installation instructions in the 3Com NIC Configuration and Diagnostic program for DOS. (See the DOSDIAG.TXT file located in the HELP directory on *EtherDisk* diskette 3 for instructions on using this program.)

Running the Intelligent Auto Install Program

To run the Intelligent Auto Install software to install the client software and drivers for a NetWare network:

1. **Install the NIC and connect it to the network, as described in Chapter 2.**
2. **Reboot to DOS.**
3. **Insert *EtherDisk* diskette 3 in drive A.**
4. **At the DOS prompt, enter:**

   `a:install`

   The *EtherDisk* diskette main menu appears.
5. **Select *Auto Install and Config for NetWare* and press Enter.**
6. **Select *DOS*, *Windows 3.1x*, or *Windows for Workgroups 3.11*, and follow the instructions.**
7. **When the installation process is finished, remove *EtherDisk* diskette 3 and reboot the PC.**

If you are running Windows 3.1x, after you connect to the NetWare server, run the WSINSTALL program for full Windows support. Contact your system administrator for the location of this NetWare utility.

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Installing the NetWare Server Driver

This section describes how to install the NetWare driver on a Novell server running NetWare 3.12, 4.10, or 4.11.

The 3C905C NIC does not support NetWare 3.11 or 4.0x servers.

The \NWSERVER directory on *EtherDisk* diskette 3 contains the network driver file (3C90X.LAN) to be used for servers running NetWare 3.12, 4.10, and 4.11.

Additional files (NetWare Loadable Modules [NLMs]) are required for servers running NetWare 4.10 or 4.11. NLM files are on *EtherDisk* diskette 3 in the /NWSERVER directory, or they can be obtained from Novell.

Obtaining NetWare Loadable Modules

You can obtain current NLMs for the NetWare servers listed in Table 5 from the Novell World Wide Web site:

`http://www.support.novell.com`

Table 5 NetWare NLMs

NetWare Server	NLM Name
NetWare 3.12	ETHERTSM.NLM
	NBI31X.NLM
	MSM31X.NLM
NetWare 4.10, 4.11	ETHERTSM.NLM
	NBI.NLM
	MSM.NLM

NetWare 3.12

To install the driver in a NetWare 3.12 server:

1. **Obtain the MSM31X.NLM, ETHERTSM.NLM, and NBI31X.NLM files from Novell and copy them to the directory on your hard drive where other NLM files are located.**
2. **Copy the LAN driver file (3C90X.LAN) from *EtherDisk* diskette 3 to the same directory.**

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3 **Add the following two lines to the AUTOEXEC.NCF file:**

```
load C:\NWSERVER\3C90X.LAN slot=<slot>
NAME=<name> FRAME=<frametype>
bind ipx to <name> net=<number>
```

4 **Save and exit the file, and then reboot the server.**

NetWare 4.10 and 4.11

To install the driver in a NetWare 4.10 or 4.11 server:

1 **Install the NetWare server software.**

The *NIC Selection* menu appears.

2 **Press Enter to display a list of NIC drivers.**

3 **Press Insert to install an unlisted driver.**

4 **Insert *EtherDisk* diskette 3 in your PC, and then press Enter.**

5 **Press Enter after the driver is loaded.**

6 **Save parameters and continue the installation.**

Multiple NICs

To support more than one NIC in a NetWare server, change the AUTOEXEC.NCF file to the following format:

```
load C:\NWSERVER\3C90X.LAN slot=<slot1>
NAME=<name1> FRAME=<frametype1>
bind ipx to <name1> net=<net1>
load C:\NWSERVER\3C90X.LAN slot=<slot2>
NAME=<name2> FRAME=<frametype2>
bind ipx to <name2> net=<net2>
```

The values <slot1> and <slot2> are the numbers of the PCI slots in which the NICs are physically installed. To view the numbers of these PCI slots, use the 3Com Configuration and Diagnostic program for DOS. See the next section, "Verifying the PCI Slot Number," for instructions.

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The values <name1> and <name2> are unique names assigned to each NIC by your system administrator. The values <name1> and <name 2> must be different.

The frame parameters <frametype1> and <frametype2> can be one of the following:

- Ethernet_802.2
- Ethernet_802.3
- Ethernet_II
- Ethernet_SNAP

Make sure that the frametype for the server and the workstation is the same. For example, if the server uses Ethernet_802.2, the workstation must also use Ethernet_802.2.

The values <net1> and <net2> are unique numbers assigned by the system administrator to each NIC. Make sure that <net1> and <net2> are different numbers.

See the appropriate Novell NetWare manuals for further information.

Verifying the PCI Slot Number

To verify the PCI slot number in which a NIC is installed:

1. **Reboot to a DOS prompt.**
2. **Insert *EtherDisk* diskette 3 in drive A.**
3. **Change to the A:\> prompt, and enter:**

   `3c90xcfg.exe`

   The Selected NIC screen (Figure 7) of the 3Com Configuration and Diagnostic Program for DOS appears.

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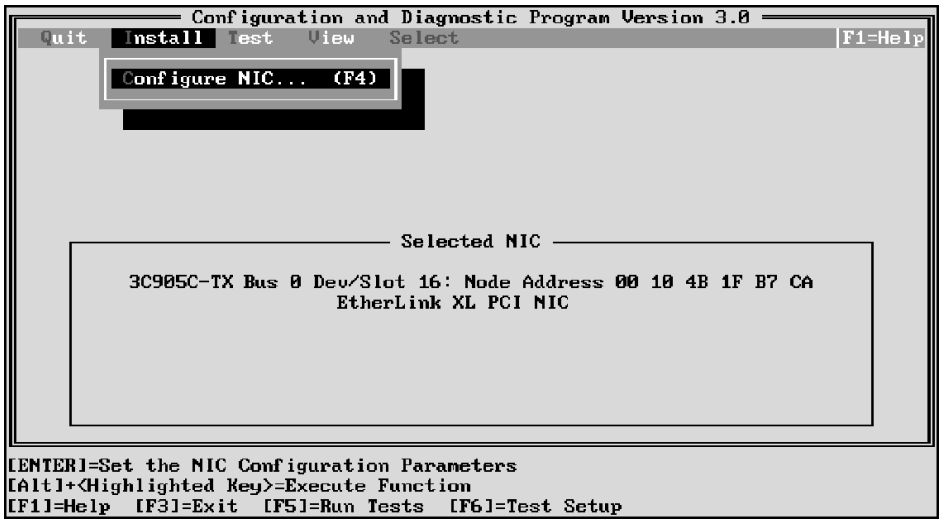
Figure 7 Selected NIC Screen



The slot number appears in the Selected NIC panel.

This slot value must match the slot value entered in the load line of the AUTOEXEC.NCF file.

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5 NIC CONFIGURATION

This chapter describes how to configure the 3C905C NIC.

Before you change the NIC configuration settings, contact your system administrator.

Configuration Methods

The 3C905C NIC can be configured using any of the methods listed in Table 6.

This chapter describes how to configure the NIC using the 3Com NIC Diagnostics program for Windows. For instructions on using the other two methods in Table 6, see the file or appendix mentioned in the table.

Table 6 NIC Configuration Methods

Method	Description	Requirement(s)
3Com NIC Diagnostics program for Windows	Configure the NIC locally using the 3Com NIC Diagnostics program for Windows: **1** Open the Windows *Start* menu. **2** Select *Programs*, and then *3Com NIC Utilities*. **3** Click *3Com NIC Doctor*.	Windows 98, Windows 95, or Windows NT 4.0
3Com Configuration and Diagnostics program for DOS	Configure the NIC locally using the 3Com Configuration and Diagnostics program for DOS: **1** Reboot the PC using a DOS diskette. **2** Insert *EtherDisk* diskette 3 in drive A. **3** Enter at the DOS prompt: **`a:\3c90xcfg.exe`** See the DOSDIAG.TXT file located in the HELP directory on *EtherDisk* diskette 3 for more information.	DOS, Windows NT 3.51, Windows 3.x, or Windows for Workgroups

(continued)

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Table 6 NIC Configuration Methods (continued)

Method	Description	Requirement(s)
DMI 2.0 or 2.0s	Configure the NIC remotely using the 3Com DMI Agent software. See Appendix C for more information.	3Com DMI Agent and a DMI-compatible browser or a network management application that supports DMI 2.0 or 2.0s

Default NIC Settings

Table 7 lists the configuration settings for the 3C905C NIC. The default setting is in bold in the Settings column.

Table 7 NIC Configuration Settings

Option	Description	Settings
Network Driver Optimization	Specifies how to optimize the network driver for your network by allowing trade-offs between network performance and CPU utilization. ■ *Normal* balances CPU utilization and network performance. ■ *Minimized CPU Utilization* saves CPU resources for other tasks. ■ *Maximized Network Performance* is appropriate if no other applications are making major demands on CPU resources.	■ Normal ■ Minimized CPU Utilization ■ Maximized Network Performance
Duplex	Specifies the duplex mode, which determines if the NIC transmits data across the network in both directions simultaneously (full-duplex) or in one direction at a time (half-duplex). ■ *Auto Select* allows the NIC to automatically connect at the duplex mode of the connected hub or switch. When you select this setting, the *Media Type* is automatically set to *Auto Select*. ■ *Full-Duplex* manually sets the NIC to operate in full-duplex mode. To use this setting, the switch that you are connected to must support full-duplex. You must also manually set the NIC *Media Type* setting. ■ *Half-Duplex* manually sets the NIC to operate in half-duplex mode. You must also manually set the NIC *Media Type* setting.	■ Auto Select ■ Full-Duplex ■ Half-Duplex

(continued)

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Table 7 NIC Configuration Settings (continued)

Option	Description	Settings
Boot PROM	Enables or disables the NICs boot ROM (if a boot ROM is installed on the NIC).	■ Enabled ■ Disabled
Media Type	Determines the type of media your network is using. ■ *Auto Select* allows the NIC to automatically select the Media Type for you. ■ If you set the NIC *Duplex* setting to *Auto Select*, the *Media Type* is automatically set to *Auto Select*. ■ If you manually set the NIC *Duplex* setting, you must manually set the *Media Type* setting.	■ Auto Select ■ 10BASE-T (10Mb/s) ■ 100BASE-TX (100Mb/s)

Changing General NIC Configuration Settings

To change the NIC general configuration settings, such as network driver optimization, duplex mode, and media type:

1 **Make sure that the NIC is installed and is connected to the network and that the driver is installed.**

2 **Start the 3Com NIC Diagnostic program.**

a Open the Windows *Start* menu.

b Select *Programs*, and then select *3Com NIC Utilities.*

c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostic General screen (Figure 8) appears.

Click Help *to obtain general information about the function of a screen. To obtain specific information about any topic on a screen, click the question mark (?) in the upper right corner of the screen, move it over a topic, and click once.*

3 **If your PC has more than one NIC installed, open the Network Interface Card (NIC) list box and select the NIC to be configured.**

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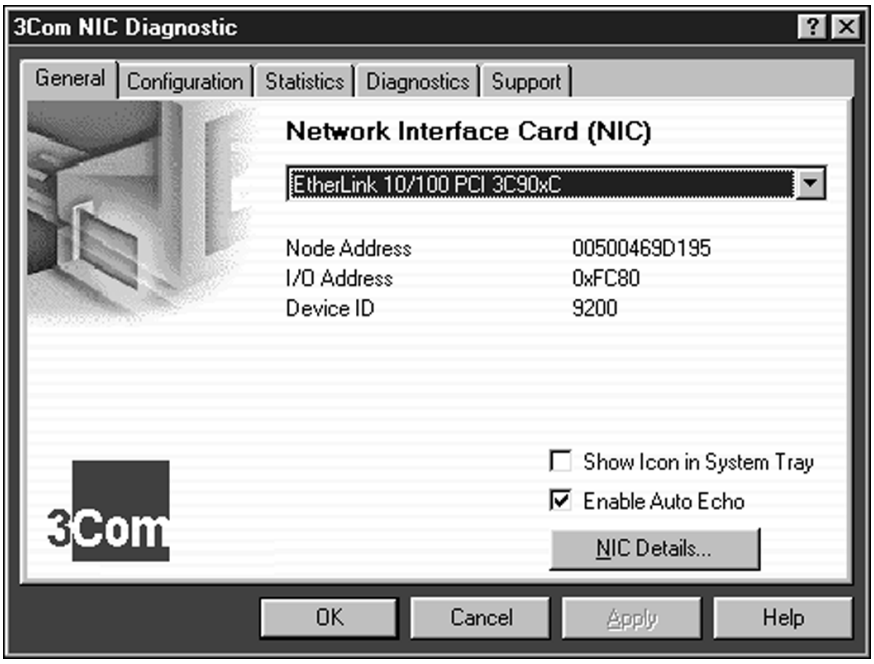
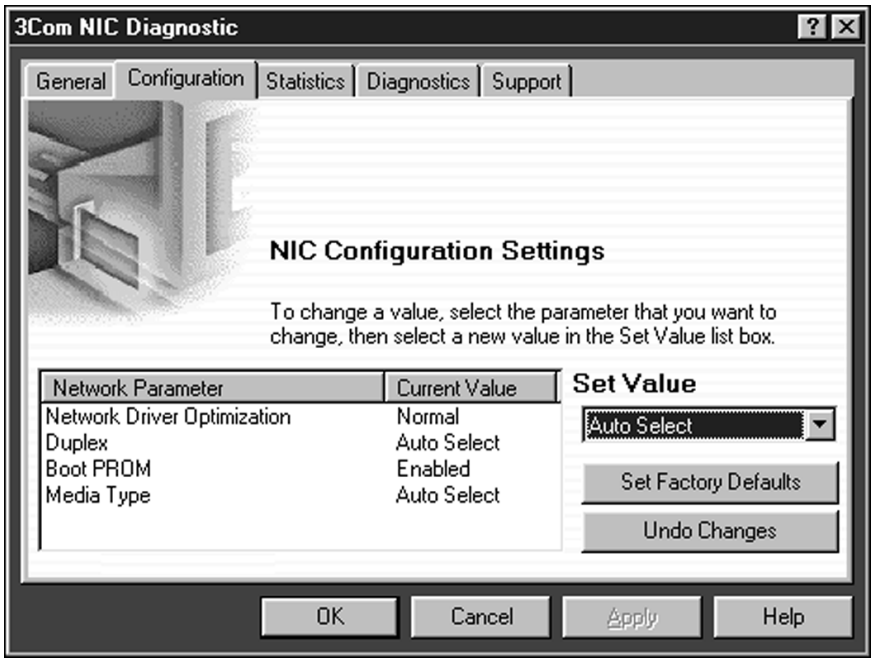
Figure 8 General Screen



4 Click the Configuration tab.

The Configuration screen (Figure 9) appears.

Figure 9 Configuration Screen



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5 **Under Network Parameter, select the setting to be changed.**

For a description of each setting, see Table 6 in the previous section or click the question mark (?) in the upper right corner of the screen, move it over a setting, and click once.

6 **Open the Set Value list box and select a new value from the list of available options.**

Repeat the process to change any other configuration setting.

- To undo changes and return the settings to their previous values, click *Undo Changes*.
- To return the settings to the factory default settings (as described in Table 6), click *Set Factory Defaults*.

7 **Click *OK* to save the changes and exit the program.**

Configuring the Managed PC Boot Agent (MBA)

This section explains how to configure the 3C905C-TX-M NIC Managed PC Boot Agent (MBA) boot ROM to boot from the network.

The information also applies to the MBA boot ROM that can be purchased separately and installed on the 3C905C-TX NIC.

For detailed information on using, configuring, and troubleshooting the MBA boot ROM, see the Managed PC Boot Agent User Guide, located on the MBA Utility diskette.

Enabling or Disabling the Boot ROM Setting

The default NIC boot ROM setting is *Enabled*. This setting must be enabled to boot from the network.

To enable or disable the NIC boot ROM setting:

1 **Make sure that the NIC is installed and is connected to the network and that the NIC driver is installed.**

2 **Start the 3Com NIC Diagnostics program.**

a Open the Windows *Start* menu.

b Select *Programs*, and then select *3Com NIC Utilities.*

c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostics General screen appears.

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3 **Click the Configuration tab.**

The Configuration screen appears.

4 **Under Network Parameter, select *Boot PROM*.**

5 **Open the Set Value list box and select *Enabled* to enable the boot ROM or *Disabled* to disable the boot ROM.**

- To undo the change and return the setting to its previous value, click *Undo Changes*.
- To return the setting to the factory default setting (as described in Table 6), click *Set Factory Defaults*.

6 **Click *OK* to save the setting and exit the program.**

Booting From the Network

The boot process for the MBA boot ROM varies depending on the type of PC you have (BBS BIOS-compatible or non-BBS BIOS-compatible).

If your PC was purchased recently, it may be BBS (BIOS Boot Specification) BIOS-compatible. The BBS determines how the system BIOS identifies boot devices in a PC (such as a CD-ROM drive, a hard drive, or a floppy drive), allows the user to select the boot order of these devices, and then sequentially attempts to boot from each device in the specified order.

Refer to your PC documentation if you do not know which type of PC you have.

BBS BIOS-Compatible PCs

To enable a BBS BIOS-compatible PC to boot from the network using the MBA boot ROM:

1 **Make sure that the NIC boot ROM setting is *Enabled.***

See the previous section, "Enabling or Disabling the Boot ROM Setting," for instructions.

2 **Set the MBA manually as the first boot device in the PC BIOS.**

Refer to your PC documentation for instructions on accessing and configuring the PC BIOS.

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3 Reboot the PC.

The MBA attempts to boot from the network using the default protocol TCP/IP DHCP.

To change the default protocol or any other MBA configurations, press Ctrl+Alt+B when the following message appears:

```
Initializing MBA. Press Ctrl+Alt+B to
configure...
```

If the network boot fails, the following message appears:

```
Network boot aborted, press any key to continue
```

The BIOS continues to the next device in the boot order (for example, the local hard drive).

To cancel the network boot, press Esc anytime during the network boot process.

Non-BBS BIOS-Compatible PCs

To enable a non-BBS BIOS-compatible PC to boot from the network using the MBA boot ROM:

1 Make sure that the NIC boot ROM setting is *Enabled.*

See "Enabling or Disabling the Boot ROM Setting" earlier in this chapter for instructions.

2 Change the MBA default boot setting from *Local* to *Network*.

To change the default boot setting or any other MBA configurations, use the MBACFG utility located on the MBA utility diskette or press Ctrl+Alt+B when the following message appears:

```
Initializing MBA. Press Ctrl+Alt+B to
configure...
```

For more information on using, configuring, and troubleshooting the MBA boot ROM, see the Managed PC Boot Agent User Guide, located on the MBA Utility diskette.

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6 TROUBLESHOOTING AND DIAGNOSTICS

This chapter explains how to solve problems that may occur when you install and use the 3C905C NIC. It also explains how to run NIC diagnostic tests, view network statistics, interpret the LEDs, and remove the NIC software.

To access a database of technical information that can help you diagnose and solve NIC installation, configuration, and upgrade problems, go to:

`http://knowledgebase.3com.com`

Troubleshooting the Installation

If you experience problems installing the NIC, or if the installation failed as described in "Verifying Successful Installation" in Chapter 3, use the troubleshooting tips in Table 8 to help resolve the problem.

CAUTION: *Before inserting or removing the NIC from the PC, turn the PC power off and unplug the power cord.*

Table 8 Installation Troubleshooting Tips

Tip	Description
Check the NIC installation	■ Make sure that you have run the preinstallation program, as described in Chapter 2. This program must be run *before* installing the NIC in the PC. ■ Make sure that the NIC is installed correctly in a PCI slot. Check for specific hardware problems, such as broken traces or loose or broken solder connections.
Check the network connection	■ Inspect all cables and connections. Make sure that the cable complies with its proper length and specifications, as described in Chapter 2 or Appendix A.
Check your PC BIOS	■ Make sure that you are running the latest BIOS for your PC. If your BIOS has not been upgraded in the previous 12 months, contact your PC manufacturer to obtain the current version of your BIOS software.

(continued)

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Table 8 Installation Troubleshooting Tips (continued)

Run the NIC diagnostic tests	■ Run the NIC and Network Tests, as described in this chapter. If the tests fail, replace the NIC with a known working NIC and run the tests again, using the same configuration settings as those used on the failed NIC. If the working NIC passes all tests, the original NIC is probably defective. For information on product repair, see Appendix D.
Check the 3Com support databases	Review the known problems and solutions found in the following areas: ■ 3Com Knowledgebase ■ 3Com NIC Help system ■ Release Notes and Frequently Asked Questions See the next section, "Accessing 3Com Support Databases," for instructions on using these databases.
Download the latest NIC driver	Download and install the latest NIC driver. Contact your PC manufacturer for the latest driver.

Accessing 3Com Support Databases

In addition to the 3Com support databases listed in this section, check the README.TXT file located on *EtherDisk* diskette 3 for troubleshooting information.

Accessing the 3Com Knowledgebase

To access a database of technical information that can help you diagnose and solve 3C905C NIC installation, configuration, and upgrade problems, go to:

`http://knowledgebase.3com.com`

Accessing the 3Com NIC Help System

To access the 3Com NIC Help system:

1. **Make sure that the NIC and its driver are installed.**
2. **Open the Windows *Start* menu.**
3. **Select *Programs*, and then *3Com NIC Utilities*.**
4. **Select *3Com NIC Doctor Help*.**

   The main Help screen appears.
5. **Click *Help Topics* to display a list of Help topics or click *Find* to search for a Help topic.**

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Accessing Release Notes and Frequently Asked Questions

To access release notes and frequently asked questions about the 3C905C NIC:

1 **Make sure that the NIC and its driver are installed.**

2 **Start the 3Com NIC Diagnostics and Configuration program.**

a Open the Windows *Start* menu.

b Select *Programs*, and then *3Com NIC Utilities.*

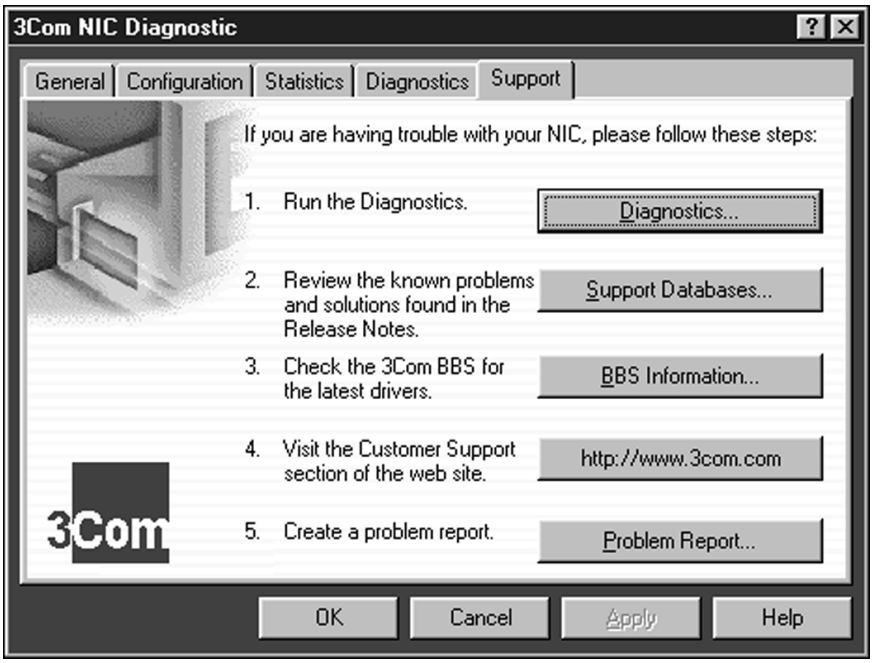
c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostics General screen appears.

3 **Click the Support tab.**

The Support screen (Figure 10) appears.

Figure 10 Support Screen



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4 ***Click Support Databases*** **to display customer support databases about the NIC in three categories:**

- Release notes — Display tips about installing and using the NIC.
- Frequently asked questions — Display common questions asked by customers and answered by 3Com support experts.
- Knowledgebase topics — Display NIC compatibility topics.

Interpreting the LEDs

The 3C905C NIC has three light-emitting diodes (LEDs), as described in Table 9, that can assist with network troubleshooting. (See Chapter 1 for a picture of the LEDs).

Table 9 LED Interpretations

LED	State	Meaning
10 LNK (link)	**On**	If drivers are installed, the 10BASE-T connection is active. If drivers are not installed, the NIC is receiving power.
	Off	Something is preventing the connection between the NIC and the hub or switch.
	Blinking	The cable polarity is reversed. Try a different network cable or contact your system administrator.
100 LNK (link)	**On**	If drivers are installed, the 100BASE-TX connection is active. If drivers are not installed, the NIC is receiving power.
	Off	Something is preventing the connection between the NIC and the hub or switch.
ACT (activity)	**Blinking**	Network traffic is present.
	Steady	Heavy network traffic is present.
	Off	No network traffic is present.

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If a LNK LED indicates a problem, check the following:

1 **Ensure that your network hub or switch and the cable connecting to your NIC comply with the specifications appropriate for your network connection.**

2 **Ensure that the hub or switch is powered on.**

Running the NIC Diagnostics Tests

The 3Com NIC Diagnostics program for Windows contains tests that can check the status of the following items:

- Network
- NIC
- Remote Wake-Up

To run NIC diagnostic tests on a PC running DOS, Windows NT 3.51, Windows 3.x, or Windows for Workgroups, use the 3Com Configuration and Diagnostics program for DOS. See the DOSDIAG.TXT file located in the HELP directory on EtherDisk *diskette 3 for instructions.*

To run the NIC Test, Network Test, or Remote Wake-Up Test on a Windows 95/98 or Windows NT 4.0 PC:

1 **Make sure that the NIC is installed and is connected to the network and that the driver is installed.**

2 **Start the 3Com NIC Diagnostics program.**

a Open the Windows *Start* menu.

b Select *Programs*, and then *3Com NIC Utilities.*

c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostics General screen appears.

Click Help *to obtain general information about the function of a screen. To obtain specific information about any topic on a screen, click the question mark (?) in the upper right corner of the screen, move it over a topic, and click once.*

3 **Click the Diagnostics tab.**

The Diagnostics screen (Figure 11) appears.

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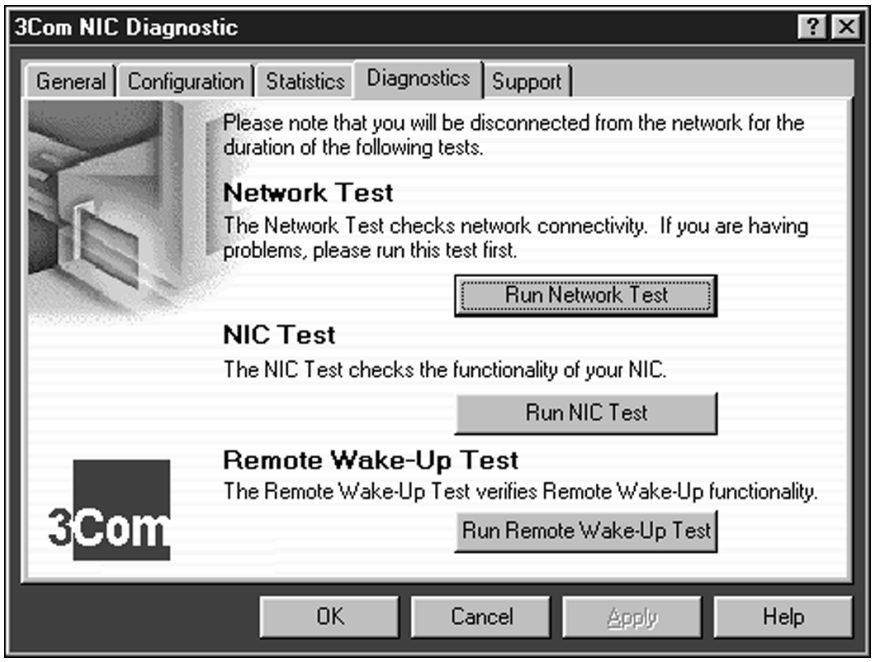
Figure 11 Diagnostics Screen



If the Run Remote Wake-Up Test *button appears dimmed, the NIC that is installed in the PC does not support Remote Wake-Up.*

To Run the Network Test

Run the Network Test to check the NIC connectivity to the network.

1 **Click *Run Network Test* on the Diagnostics screen.**

The Network Connectivity Test screen appears.

2 **Click *Start*.**

If the test fails:

- Make sure that the NIC is properly connected to the network cable.
- Make sure that the hub or switch to which the NIC is connected is powered on.
- Make sure that the cable complies with the proper length and specifications for your network.

If the test passes, the NIC connection to the network is functioning correctly.

3 **Click *Close*.**

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To Run the NIC Test

Run the NIC Test to check the physical components, connectors, and circuitry on the NIC.

1 **Click *Run NIC Test* on the Diagnostics screen.**

The NIC Test screen appears.

2 **Click *Perform NIC Test*.**

While the test is running, a progress bar indicates test progress.

If the test fails, a message indicates the error type. Click *Help* in the error message screen to obtain more information.

If the test passes, the NIC is functioning correctly.

3 **Click *Close*.**

To Run the Remote Wake-Up Test

You need at least two PCs on your network that contain a 3Com NIC with *EtherDisk* 4.x or later software to run the Remote Wake-Up Test.

1 **On the first PC, enable Auto Echo:**

a Open the 3Com NIC Diagnostics program and make sure that Auto Echo is enabled on the General screen.

b Close the 3Com NIC Diagnostics program.

c Make sure that the PC remains powered on and connected to the network.

2 **On the second PC, run the Remote Wake-Up Test:**

a Click *Run Remote Wake-Up Test* on the Diagnostics screen.

If the Run Remote Wake-Up Test *button appears dimmed, the NIC does not support Remote Wake-Up.*

The Remote Wake-Up Test screen (Figure 12) appears.

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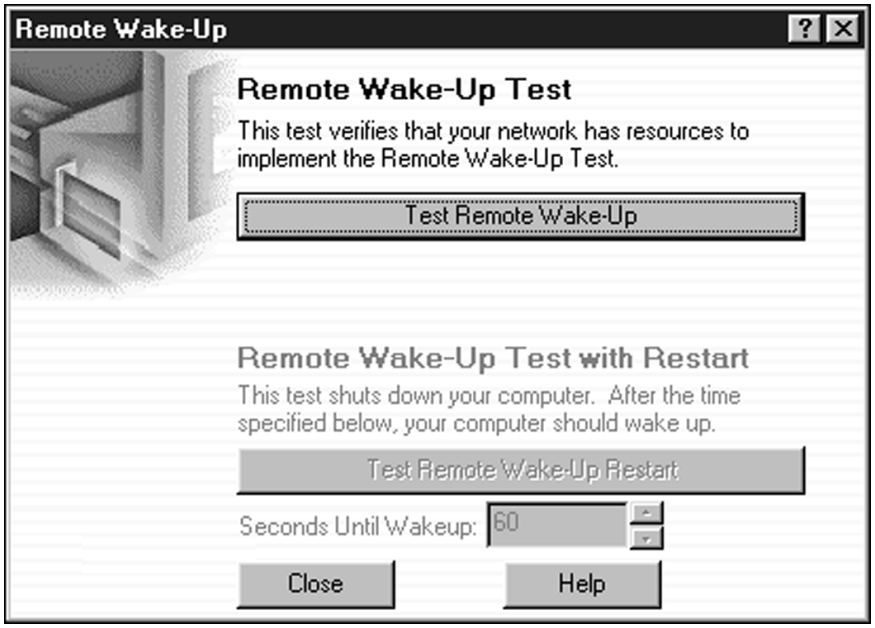
Figure 12 Remote Wake-Up Test Screen


Remote Wake-Up
Remote Wake-Up Test
This test verifies that your network has resources to implement the Remote Wake-Up Test.
Test Remote Wake-Up
Remote Wake-Up Test with Restart
This test shuts down your computer. After the time specified below, your computer should wake up.
Test Remote Wake-Up Restart
Seconds Until Wakeup:
60
Close
Help

b Click *Test Remote Wake-Up* to verify that another PC exists on the network that has the *EtherDisk* 4.x or later software Auto Echo feature enabled.

- If the test passes, another PC with the Auto Echo feature enabled was detected on the network.
- If the test fails, another PC with the Auto Echo feature enabled was *not* detected on the network. You will not be able to run the Remote Wake-Up Test (the *Test Remote Wake-Up Restart* button will appear dimmed).

c Enter the number of seconds in the Seconds Until Wakeup entry box that the PC remains shut down until it receives a Wake-Up packet from the first PC.

d Click *Test Remote Wake-Up Restart.*

The PC shuts down.

- If the PC automatically powers on after the number of seconds specified in the Seconds Until Wakeup entry box, Remote Wake-Up is functioning correctly.
- If the PC does not power on, Remote Wake-Up is not functioning. See the next section, "Troubleshooting Remote Wake-Up," for more help.

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Troubleshooting Remote Wake-Up

If your PC does not boot in response to a Remote Wake-Up event, perform these troubleshooting steps:

1 **Make sure that the PC meets the Remote Wake-Up requirements listed in Chapter 1.**

2 **Make sure that you are using the latest driver for the NIC.**

This driver is shipped with the NIC on the *EtherDisk* diskettes. It can also be obtained from your PC manufacturer.

3 **Make sure that Remote Wake-Up is enabled on the NIC.**

See "Configuring the Managed PC Boot Agent (MBA)" in Chapter 5 for instructions.

4 **Perform the Remote Wake-Up Test.**

See the previous section, "Running the NIC Diagnostics Tests," for instructions.

5 **Check the PC BIOS.**

a Boot the PC and enter the BIOS.

If you do not know how to enter the BIOS, consult the reference manual for your PC or contact your PC vendor.

b Locate the Wake-Up on LAN event setting.

c Verify that the setting is enabled.

6 **If your PC is not compliant with PCI 2.2, check the Remote Wake-Up cable connection.**

a Turn off the power to the PC and remove the PC cover.

a Make sure that the Remote Wake-Up cable is plugged in to the RWU connector on the NIC and in to the appropriate connector on the PC motherboard. Unplug and reinsert the cable if necessary.

b Replace the Remote Wake-Up cable with a known functioning Remote Wake-Up cable and perform the Remote Wake-Up Test again.

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7 If the previous steps have failed, install a known functioning Remote Wake-Up NIC in the PC.

- If Remote Wake-Up works with the new NIC installed, contact your PC vendor for a replacement NIC.
- If Remote Wake-Up does not work with the new NIC installed, there may be a problem with the PC motherboard. Contact your PC manufacturer.

Viewing Network Statistics

To view statistical information about the network:

1 Start the 3Com NIC Diagnostics program.

a Open the Windows *Start* menu.

b Select *Programs*, and then *3Com NIC Utilities.*

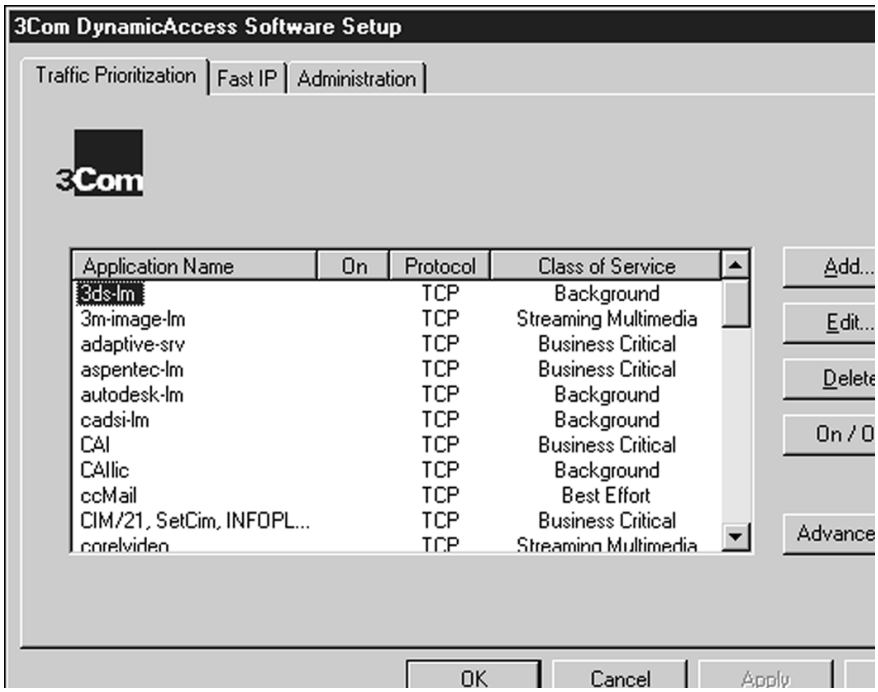
c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostics General screen appears.

2 Click the Statistics tab.

The Statistics screen (Figure 13) appears.

Figure 13 Statistics Screen



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The information is updated by the NIC driver every 5 seconds.

For a description of each statistic, click the question mark (?) in the upper right corner of the screen, drag it over a statistic and click once. A pop-up box appears, displaying information about the statistic.

3 Click *OK* to exit the diagnostics program. To go to another diagnostics screen, click the associated tab.

Using the 3Com Icon in the Windows System Tray

If the 3Com icon is visible in the Windows system tray, double-click the icon to start the 3Com NIC Diagnostics program.

If a red circle with a line through it appears over the 3Com icon, there is no connection between the NIC and the network. See "Frequently Asked Questions" later in this chapter for help.

To show the 3Com icon in the Windows system tray:

1 Start the 3Com NIC Diagnostics program.

a Open the Windows *Start* menu.

b Select *Programs*, and then *3Com NIC Utilities.*

c Click *3Com NIC Doctor.*

The 3Com NIC Diagnostics General screen appears.

2 On the General screen, select the check box next to *Show Icon in System Tray*.

3 Close the 3Com NIC Diagnostic program.

When you drag your mouse pointer over the 3Com icon, but before you double-click the icon, a network statistics box appears, displaying the following information:

- Frames Sent and Received — A count of the number of frames (packets) sent and received through the NIC since the last time statistics were reset.
- Link Speed — The speed (10 Mbps or 100 Mbps) at which the NIC is connected to the network.

The information is updated each time you move your mouse pointer over the 3Com icon.

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Removing NIC Software

This section describes how to remove the 3C905C NIC driver and software from your PC. This section also applies to removing older NIC drivers from your PC.

CAUTION: *If you want to reinstall the NIC driver and software, you must first remove the software, as described in this section.*

Windows 95 and Windows 98

To remove NIC software from a PC running Windows 95 or Windows 98:

1. **Double-click the My Computer icon, then the Control Panel icon, and then the System icon.**
2. **Click the Device Manager tab.**
3. **Double-click *Network adapters*.**
4. **Highlight the name of the NIC.**
5. **Click *Remove*.**
6. **Click *OK* to confirm the device removal.**

   You are prompted to restart the PC.

   - If you are physically removing the NIC from the PC, click *No*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
   - If you are reinstalling the NIC software, click *Yes* to restart the PC.

Windows NT 4.0

To remove NIC software from a PC running Windows NT 4.0:

1. **Double-click the My Computer icon, then the Control Panel icon, and then the Network icon.**

   The Network screen appears.
2. **Click the Adapters tab.**
3. **Highlight the name of the NIC in the Network Adapters box, and then click *Remove*.**

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4 **Click *Yes* to confirm the removal.**

5 **Click *Close* to close the Network screen.**

You are prompted to restart the PC.

- If you are physically removing the NIC from the PC, click *No*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
- If you are reinstalling the NIC software, click *Yes* to restart the PC.

Windows NT 3.51

To remove NIC software from a PC running Windows NT 3.51:

1 **In the Main program window, double-click the Control Panel icon, and then double-click the Network icon.**

The Network Settings window appears.

2 **In the Installed Adapter Cards panel, select the name of the installed NIC, and then click *Remove*.**

A warning message appears.

3 **Click *Yes* to confirm the removal.**

The Network Settings window appears. The NIC no longer appears in the Installed Adapter Cards panel.

4 **Click *OK*.**

The NIC driver and software are removed from the PC. You are prompted to restart the PC.

- If you are physically removing the NIC from the PC, click *Don't Restart Now*. Do not restart the PC until you shut down the system, turn the power off, and remove the NIC from the PC.
- If you are reinstalling the NIC software, click *Restart Now* to restart the PC.

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Frequently Asked Questions

Table 10 describes some common questions and answers about the 3C905C NIC.

For additional information about the NIC, see the text files located in the HELP directory on *EtherDisk* diskette 3 or go to the following 3Com World Wide Web site:

http://knowledgebase.3com.com/

Table 10 Frequently Asked Questions

Question	Answer
In Windows 95/98, what if a yellow exclamation point (!) appears next to the NIC name in the Device Manager?	**1** In the Device Manager, double-click *Other Devices*. **2** Click *PCI Ethernet Controller* or the duplicate NIC entry. **3** Click *Remove*. **4** Reboot your PC.
In Windows 95/98, what if a red X appears next to the NIC name in the Device Manager?	**1** Double-click the name of the NIC. **2** Select the General tab. **3** Make sure that *Disable in this hardware profile* is not selected.
Why does the NIC install as a generic PCI Ethernet controller under *Other Devices* in the Windows 95/98 Device Manager?	When Windows 95/98 is installed after the NIC has already been physically installed in the PC, Windows 95/98 may install the NIC as a generic PCI Ethernet controller. To work around this problem, follow these steps: **1** In the Device Manager, double-click *Other Devices*. **2** Click *PCI Ethernet Controller*, and then click *Remove*. **3** Reboot your PC.
What if a red circle with a line through it appears over the 3Com icon in my Windows system tray?	If you enabled the 3Com icon to appear in the Windows system tray, and a red circle with a line through it appears over the icon, the network link is lost (that is, the PC is no longer physically connected to the network). ■ Check the cable between the NIC and the hub or switch. Make sure that it follows the appropriate cable specifications. See Appendix A. ■ Make sure that the hub or switch is powered on. ■ Reboot the PC.

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Table 10 Frequently Asked Questions (continued)

Question	Answer
Where can I get more information about the MBA boot ROM?	For more information on using and configuring the MBA boot ROM, see Chapter 5 in this user guide or refer to the *Managed PC Boot Agent (MBA) User Guide* included on the MBA Utility diskette. General information about the MBA boot ROM is available on the 3Com World Wide Web site: **`http://www.3com.com/managedpc`**
Which PCI slot should I use for my PCI NIC?	3Com PCI NICs are designed to work in any bus-mastering PCI slot, preferably slot 1. Normally, slot 1 is marked on the PC motherboard and is located closest to the PC power supply. Avoid any PCI slot next to an ISA slot. This is often a shared slot and does not support bus mastering. Refer to your PC manual for information on which slots support bus-mastering data transfers.
Do I have to configure the NIC?	PCI is a self-configuring bus architecture. Most of the time you only need to install the NIC in your PC; PCI does the rest. However, on some PCI computers, you may be required to configure the computer BIOS manually after installing your PCI NIC. Refer to the owner's guide for your PC.
What interrupts should I avoid?	You should avoid using any interrupts used by ISA/EISA boards that do not properly support shared interrupts (level-triggered). If you do not know or are unsure whether other devices or adapters in your PC support shared interrupts, then avoid using them. Avoid using the same interrupt as your local hard disk (normally IRQ 14 for IDE drives and IRQ 11 for most SCSI host adapters), because not all hard disks support shared interrupts at this time. Avoid using 9 because it cascades with 2. For Novell NetWare servers, avoid using IRQ 7 or 15. These IRQs support only nonshared devices and may cause problems if they are shared between two devices.
Does the NIC support full-duplex?	Yes, the 3C905C NIC supports full-duplex at 10 Mbps or 100 Mbps.
Does the NIC support NetWare version 3.11 or 4.0x?	No, the 3C905C NIC does not support NetWare 3.11 or 4.0x. These versions require the use of a server driver that conforms to the HSM 3.2 specification. 3Com no longer develops NetWare server drivers that conform to the HSM 3.2 specification.

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Table 10 Frequently Asked Questions (continued)

Question	Answer
Are the 3C905C NIC network drivers Microsoft-certified?	Yes.
Are the 3C905C bus master ODI drivers Novell-certified?	Yes.
Where can I get a SCO driver?	Obtain the SCO driver from the 3Com World Wide Web site: **http://www.3com.com/**
What does Remote Wake-Up do, and where can I get more information about it?	Remote Wake-Up is the ability to power on a network PC remotely. Remote Wake-Up is also known as Wake on LAN. For more information, see Chapter 1 in this user guide or go to the following 3Com World Wide Web site: **http://www.3com.com/partners/acpi**
Where can I get more information about Fast IP and Dynamic*Access* software?	Fast IP, part of 3Coms Dynamic*Access* software, improves performance on switched networks by allowing end stations (workstations and servers) to discover switched communication paths. By creating switched shortcuts, Fast IP allows end stations to bypass the router and transfer data across wire-speed switched paths. For more information on Fast IP, see the FASTIP.TXT file located in the HELP directory on *EtherDisk* diskette 3. For more information on Dynamic*Access* software, see Chapter 1 in this user guide or go to: http://www.3com.com/dynamicaccess

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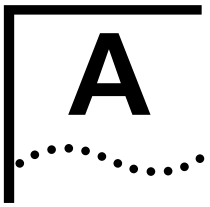

SPECIFICATIONS AND CABLING REQUIREMENTS

This appendix lists the specifications, standards conformance, cable requirements, and connector pin assignments for the 3C905C NIC.

Hardware Specifications

Network Interface

10 Mbps Ethernet 10BASE-T	Ethernet IEEE 802.3 industry standard for a 10 Mbps baseband CSMA/CD local area network
100 Mbps Fast Ethernet 100BASE-TX	Fast Ethernet IEEE 802.3u industry standard for a 100 Mbps baseband CSMA/CD local area network

Physical Dimensions

Length:	14.86 cm (5.85 in)
Width:	7.62 cm (3.00 in)

Environmental Operating Range

Operating temperature:	0° to 70° C (32° to 158° F)
Humidity:	10 to 90% noncondensing
Altitude	-300 to 3,000 meters (-984 to 9,840 ft)

Power Requirements

Operating voltage:	+3.3 V ± 5% @ 375 mA max

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Standards Conformance

- IEEE 802.3 10BASE-T
- IEEE 802.3u 100BASE-TX
- IEEE 802.3x Full Duplex auto-negotiation and flow control
- NWay 10/100 auto-negotiation
- IEEE 802.1p/Q
- IEEE 802.1Q VLAN Tagging
- RMON
- Microsoft PC97
- Microsoft PC98
- Microsoft PC99
- Net PC
- PCI 2.2
- DMI 2.0 and 2.0s
- ACPI 1.0
- Wired for Management 1.1a, 2.0
- Pre-OS boot protocol support (PXE, BootP/DHCP, NCP, RPL)

Cabling Requirements

The cable, quality, distance, and connectors must comply with the Electronic Industries Association/Telecommunications Industries Association (EIA/TIA) 568 *Commercial Building Wiring Standard* and the Technical Services Bulletin TSB38 standards.

Twisted-Pair Cable

Twisted-pair cable consists of copper wires surrounded by an insulator. Two wires are twisted together (the twisting prevents interference problems) to form a pair, and the pair forms a circuit that can transmit data. A cable is a bundle of one or more twisted pairs surrounded by an insulator.

Unshielded twisted pair (UTP) is the most commonly used type of twisted-pair cable. Shielded twisted pair (STP) provides protection against crosstalk. Twisted-pair cable is now commonly used in Ethernet, Fast Ethernet, and other network topologies.

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The EIA/TIA defines five categories of unshielded twisted-pair cable (see Table 11).

Table 11 Unshielded Twisted-pair Cable Categories

Category	Use
1	Traditional telephone cable.
2	Data transmissions up to 4 MHz.
3	Voice and data transmission up to 25 MHz. The cable typically has four pairs of wires. Category 3 is the most common type of installed cable found in older corporate wiring schemes.
4	Voice and data transmission up to 33 MHz. The cable normally has four pairs of wire. This grade of UTP is not common.
5	Voice and data transmission up to 125 MHz. The cable normally has four pairs of copper wire and three twists per foot. Category 5 UTP is the most popular cable used in new installations today.

10BASE-T Operation

10BASE-T is the Institute of Electrical and Electronics Engineers (IEEE) 802.3 standard for Ethernet signaling over unshielded twisted-pair wire at 10 Mbps.

Ethernet, as the most widely used network protocol, uses 10BASE-T as its primary cabling scheme. Ethernet characteristics include:

- A data rate of 10 Mbps.
- A broadcast architecture.
- A specific media-access control (MAC) scheme.

The 10BASE-T name indicates a signaling speed of 10 Mbps and twisted-pair wiring. *Base* stands for baseband, which denotes a technique for transmitting signals as direct-current pulses rather than modulating them onto separate carrier frequencies.

A wiring topology using 10BASE-T specifies a wiring hub, cable arranged in a star configuration, and unshielded twisted-pair cable. Each node has a separate cable run that must not exceed 100 meters (328 ft) from the node to the hub.

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100BASE-TX Operation

100BASE-TX is the IEEE 802.3u standard for Fast Ethernet signaling over Category 5 UTP or STP wire at 100 Mbps.

Based on an extension to the IEEE 802.3 Ethernet specification, Fast Ethernet characteristics include:

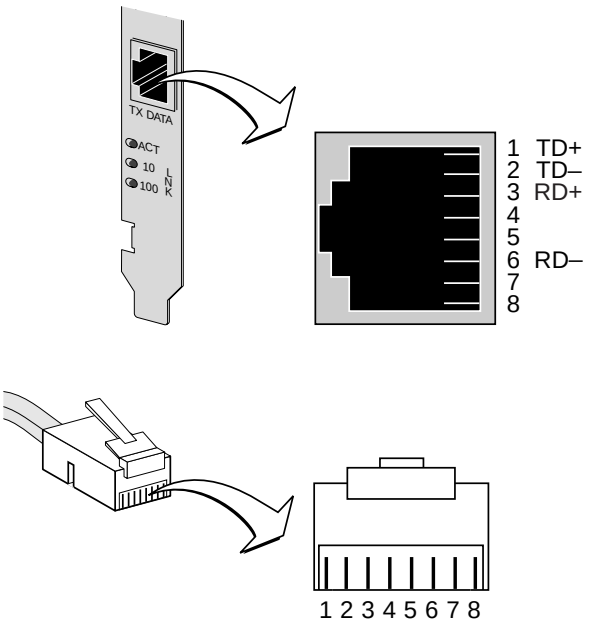
- A data rate of 100 Mbps.
- A broadcast architecture.
- A specific media-access control (MAC) scheme.

A wiring topology using 100BASE-TX specifies a wiring hub, cable arranged in a star configuration, and Category 5 UTP or STP wiring. Each node has a separate cable run that must not exceed 100 meters (328 ft) from the node to the hub.

RJ-45 Connector Pin Assignments

Figure 14 shows the RJ-45 connector pin assignments for the 3C905C NIC.

Figure 14 RJ-45 Connector Pin Assignments



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B DYNAMIC*Access* SOFTWARE INSTALLATION AND CONFIGURATION

This chapter explains how to install and configure Dynamic*Access* software on a PC running Windows 95, Windows 98, or Windows NT.

*For an overview of Dynamic*Access *software, see Chapter 1. For detailed information on using, configuring, and troubleshooting Dynamic*Access *software, access the* Dynamic*Access* Software User Guide *from the 3Com World Wide Web site:*

`http://www.3com.com/dynamicaccess`

Client PC Requirements

Dynamic*Access* software can be installed on a PC running Windows 95, Windows 98, Windows NT 4.0, or Windows NT 3.51.

CAUTION: *If you plan to install Dynamic*Access *software on a multiprocessor PC running Windows NT 4.0, Service Pack 4, you must first download and install the appropriate Microsoft patch available at:*

`http://www.3com.com/dynamicaccess/hotfixes`

Failure to install the patch will result in system failure.

Table 12 lists the minimum client requirements and recommended Microsoft Service Packs (if any) for the version of Dynamic*Access* software that is included with the 3C905C NIC on *EtherDisk* diskette 2.

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Table 12 Dynamic*Access* Software Minimum Client Requirements

Operating System	PC Requirements	Recommended Microsoft Service Pack
Windows 95	486/75 MHz CPU 16 MB RAM (32 MB recommended) 5 MB available hard drive space	Windows 95 OSR2 or Service Pack 1
Windows 98	486/75 MHz CPU 16 MB RAM (32 MB recommended) 5 MB available hard drive space	None
Windows NT 4.0	Pentium/100 MHz CPU 32 MB RAM 5 MB available hard drive space	Service Pack 3
Windows NT 3.51	Pentium/100 MHz CPU 32 MB RAM 5 MB available hard drive space	Service Pack 5

Installing Dynamic*Access* Software

To install Dynamic*Access* software:

1 **Make sure that the NIC and its software are installed on your PC.**

See "Verifying Successful Installation" in Chapter 3 to confirm that the NIC is properly installed in the PC.

2 **Start Windows.**

3 **Double-click the DAINST.EXE file on your hard drive.**

This file is automatically copied to your hard drive during the NIC driver installation into the following directory:

- Windows 95/98 — C:\WINDOWS\SYSTEM
- Windows NT 4.0 — C:\WINNT\SYSTEM32
- Windows NT 3.51 — C:\WINNT35\SYSTEM32

If you cannot locate the file on your hard drive, copy the file from *EtherDisk* diskette 2 to the appropriate directory.

The file is expanded and the Dynamic*Access* software is installed on your PC.

4 **Restart the PC.**

You must restart the PC to complete the installation.

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Verifying Successful Installation

After Dynamic*Access* software is installed, the following changes are visible in the Windows Network control panel:

- For each physical NIC installed in the PC, a virtual NIC entry appears in the list of network adapters.

  All protocols are re-bound to the virtual NIC. The bindings to the physical NIC are still intact.
- A 3Com Dynamic*Access* software entry appears as a protocol.
- A 3Com Dynamic*Access* software icon is installed in the Windows Control Panel.

Configuring Dynamic*Access* Software

Contact your system administrator about using Dynamic*Access* software at your site.

*Dynamic*Access *software configuration instructions are intended for network administrators who have experience installing software and using management tools for an Ethernet network.*

The instructions in this section are for configuring Dynamic*Access* software on a local PC. You can obtain the complete configuration instructions by expanding the downloadable file that contains the Dynamic*Access* software from the 3Com World Wide Web site:

`http://www.3com.com/dynamicaccess`

To view the complete configuration instructions you need a Web browser. You do *not* need to reinstall the software.

To configure Dynamic*Access* software on a local PC:

1 **Double-click the 3Com Dynamic*Access* icon in the Windows Control Panel.**

The Traffic Prioritization tab of the Dynamic*Access* Software Setup screen (Figure 15) appears.

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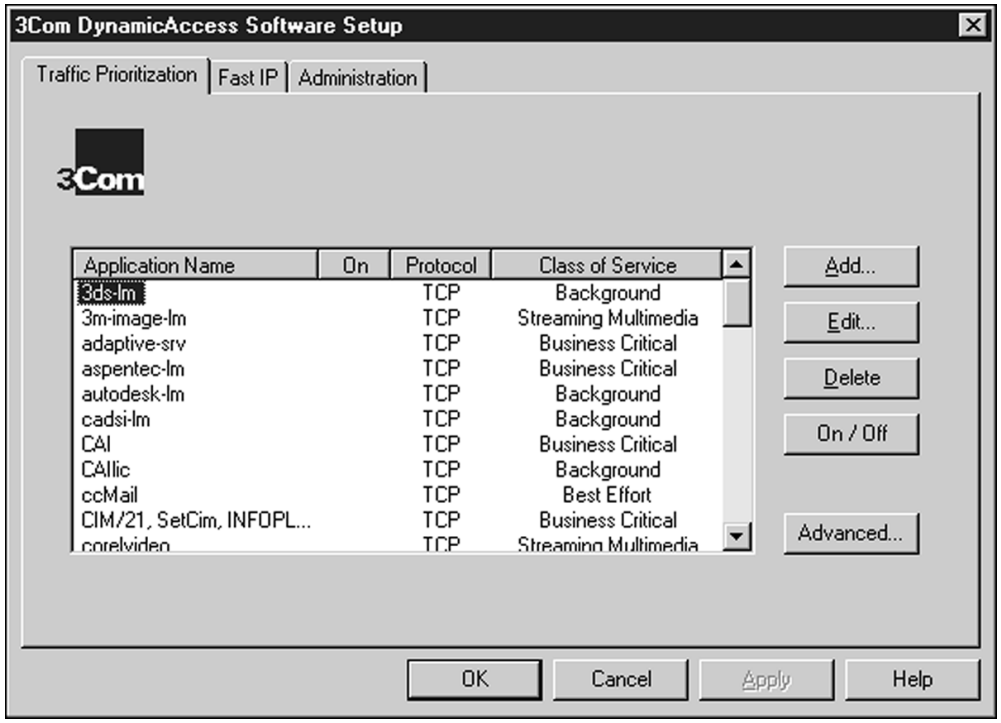
Figure 15 Dynamic*Access* Software Setup Screen — Traffic Prioritization



2 Select the tab containing the information you want to configure.

- Traffic Prioritization — Allows you to prioritize applications, which can ease bottlenecks in your network and allow critical applications to take network precedence.
- Fast IP — Allows you to enable and configure Fast IP.
- Administration — Allows you to set Dynamic*Access* control panel access, set VLAN options, enable efficient multicast control, and enable the prioritizing of traffic.

*For specific instructions on configuring any of the Dynamic*Access *software options, click* Help *on the 3Com Dynamic*Access *Software screen or go to the following 3Com World Wide Web site:*

`http://www.3com.com/dynamicaccess`

Removing Dynamic*Access* Software

For instructions on removing Dynamic*Access* software from your PC, see the *DynamicAccess Software User Guide*. This user guide can be accessed on the 3Com World Wide Web site:

`http://www.3com.com/dynamicaccess`

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C 3COM DMI AGENT INSTALLATION

This appendix explains how to install the 3Com Desktop Management Interface (DMI) Agent on your PC.

The 3Com DMI Agent allows any DMI-compatible browser or network management application that supports DMI 2.0 or 2.0s to remotely manage and configure advanced features of the 3C905C NIC.

For detailed information on the 3Com DMI Agent, see the 3Com DMI Agent User Guide included with the 3Com DMI Agent software.

For more information on DMI, go to the following 3Com World Wide Web site:

http://www.3com.com/managedpc

Overview

The 3Com DMI Agent allows you to obtain basic NIC information, including:

- Node address
- MAC address
- Driver version

Additionally, depending on the features of your NIC, the 3Com DMI Agent allows you to view and configure advanced NIC features, including:

- Managed PC Boot Agent (MBA) software
- Remote Wake-Up events
- Workgroup keep-alive packet
- Remote system alerts

Each PC that contains a 3C905C NIC and the 3Com DMI Agent generates a Management Information Format (MIF) file that contains information about the PC and the NIC. DMI applications use the information from the MIF to manage the PC and the NIC.

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The content of the MIF is based on the capabilities of the NIC driver found in the PC. For example, if a NIC with an MBA boot ROM is found, all groups related to the boot ROM are included in the MIF for that particular NIC. This ensures that the network management application does not receive irrelevant information for the NIC.

For a description of each MIF that is supported by the 3Com DMI Agent, see the *3Com DMI Agent User Guide included with the 3Com DMI Agent software.*

System Requirements

This section lists the client PC and network management requirements for installing and using the 3Com DMI Agent.

Client PC Requirements

Your PC requires the following items to use the 3Com DMI Agent:

- DMI Service Provider 2.0 or greater (such as Smart Technologies Service Provider 2.0)
- NDIS 3, 4, or 5 driver
- Windows 95, Windows 98, or Windows NT, using the appropriate Service Pack listed below:
  - Windows 95 Retail Service Pack 1 or OEM Service Release (OSR2)
  - Windows 98 Retail Release
  - Windows NT 4.0 Service Pack 3 or 4
  - Windows NT 3.51 Service Pack 5

Network Management Requirements

Your network management station requires a DMI-compatible browser or a network management application that supports DMI 2.0 or 2.0s, such as:

- Hewlett Packard TopTools
- Tivoli Management Suite
- Dell OpenManage
- Compaq Insight Manager Management Station
- Intel LANDesk Client Manager

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Installing the 3Com DMI Agent

This section describes how to install the 3Com DMI Agent on a PC running Windows 95, Windows 98, or Windows NT 4.0.

For instructions on how to install the 3Com DMI Agent on a PC running Windows NT 3.51, see the 3Com DMI User Guide included with the 3Com DMI Agent software.

Before installing the DMI Agent, logon to the PC with an account that has system administration privileges.

To install the 3Com DMI Agent:

1. **Make sure that the PC meets the requirements listed in "Client PC Requirements" earlier in this chapter.**
2. **Make sure that the 3C905C NIC is installed in the PC and is connected to the network, as described in Chapter 2.**
3. **Insert the 3Com DMI Agent media in your PC.**
4. **Run the 3COMDMI.EXE file.**
5. **Follow the prompts on the screen.**
6. **Restart the PC when prompted.**

   To verify successful installation, use a DMI-compatible browser or a network management application that supports DMI 2.0 or 2.0s to verify that the 3Com NIC is present. See the *3Com DMI Agent User Guide or contact your system administrator* for instructions.

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D TECHNICAL SUPPORT

3Com provides easy access to technical support information through a variety of services. This appendix describes these services.

Information contained in this appendix is correct at time of publication. For the very latest, 3Com recommends that you access the 3Com Corporation World Wide Web site.

Support from Your Network Supplier

If assistance is required, contact your computer supplier for support and service of your 3Com network interface card. When you contact your network supplier for assistance, have the following information ready:

- Diagnostic error messages
- A list of system hardware and software, including revision levels
- Details about recent configuration changes, if applicable

If you are unable to contact your network supplier, see the following section on how to contact 3Com.

Online Technical Services

3Com offers worldwide product support 24 hours a day, 7 days a week, through the following online systems:

- World Wide Web site
- 3Com Bulletin Board Service (3Com BBS)
- 3Com Facts℠ automated fax service

World Wide Web Site

Access the latest networking information on the 3Com Corporation World Wide Web site by entering the URL into your Internet browser:

`http://www.3com.com/`

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This service provides access to online support information such as technical documentation and software library, as well as support options ranging from technical education to maintenance and professional services.

3Com FTP Site

Download drivers, patches, software, and MIBs across the Internet from the 3Com public FTP site. This service is available 24 hours a day, 7 days a week.

To connect to the 3Com FTP site, enter the following information into your FTP client:

- Hostname: **`ftp.3com.com`** (or **`192.156.136.12`**)
- Username: **`anonymous`**
- Password: **`<your Internet e-mail address>`**

A user name and password are not needed with Web browser software such as Netscape Navigator and Internet Explorer.

3Com Bulletin Board Service

The 3Com BBS contains patches, software, and drivers for 3Com products. This service is available through analog modem or digital modem (ISDN) 24 hours a day, 7 days a week.

Access by Analog Modem

To reach the service by modem, set your modem to 8 data bits, no parity, and 1 stop bit. Call the telephone number nearest you:

Country	Data Rate	Telephone Number
Australia	Up to 14,400 bps	61 2 9955 2073
Brazil	Up to 14,400 bps	55 11 5181 9666
France	Up to 14,400 bps	33 1 6986 6954
Germany	Up to 28,800 bps	4989 62732 188
Hong Kong	Up to 14,400 bps	852 2537 5601
Italy	Up to 14,400 bps	39 2 27300680
Japan	Up to 14,400 bps	81 3 3345 7266
Mexico	Up to 28,800 bps	52 5 520 7835
P.R. of China	Up to 14,400 bps	86 10 684 92351

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Country	Data Rate	Telephone Number
Taiwan, R.O.C.	Up to 14,400 bps	886 2 377 5840
U.K.	Up to 28,800 bps	44 1442 438278
U.S.A.	Up to 53,333 bps	1 847 262 6000

Access by Digital Modem

ISDN users can dial in to the 3Com BBS using a digital modem for fast access up to 64 Kbps. To access the 3Com BBS using ISDN, use the following number:

1 847 262 6000

3Com Facts Automated Fax Service

The 3Com Facts automated fax service provides technical articles, diagrams, and troubleshooting instructions on 3Com products 24 hours a day, 7 days a week.

Call 3Com Facts using your Touch-Tone telephone:

1 408 727 7021

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3Com Corporation LIMITED WARRANTY

EtherLink 10/100 PCI for Complete PC Management Network Interface Card

HARDWARE

3Com warrants its hardware products to be free from defects in workmanship and materials, under normal use and service, for the following lengths of time from the date of purchase from 3Com or its authorized reseller:

Network Interface Cards	Lifetime
Other hardware products *unless otherwise specified above	1 year*
Spare parts and spares kits	90 days

If a product does not operate as warranted above during the applicable warranty period, 3Com shall, at its option and expense, repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. Any replaced or repaired product or part has a ninety (90) day warranty or the remainder of the initial warranty period, whichever is longer.

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3Com warrants that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with 3Com's published specifications or user manual.

YEAR 2000 WARRANTY

In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998 that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site, http://www.3com.com/products/yr2000.html, as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.

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Obtaining Warranty Service

Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a Return Material Authorization (RMA) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product.

Dead- or Defective-on-Arrival. In the event a product completely fails to function or exhibits a defect in materials or workmanship within the first forty-eight (48) hours of installation but no later than thirty 30) days after the date of purchase, and this is verified by 3Com, it will be considered dead- or defective-on-arrival (DOA) and a replacement shall be provided by advance replacement. The replacement product will normally be shipped not later than three (3) business days after 3Com's verification of the DOA product, but may be delayed due to export or import procedures. When an advance replacement is provided and Customer fails to return the original product to 3Com within fifteen (15) days after shipment of the replacement, 3Com will charge Customer for the replacement product, at list price.

3Com shall not be responsible for any software, firmware, information, or memory data of Customer contained in, stored on, or integrated with any products returned to 3Com for repair, whether under warranty or not.

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3Com Corporation
5400 Bayfront Plaza
Santa Clara, CA 95054
(408) 326-5000

FCC CLASS B STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

WARNING: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules, and the Canadian Department of Communications Equipment Standards entitled, "Digital Apparatus," ICES-003.These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from the one which the receiver is connected to.
- Consult the dealer or an experienced radio/TV technician for help.

The user may find the following booklet prepared by the Federal Communications Commission helpful:

The Interference Handbook

This booklet is available from the U.S. Government Printing Office, Washington, D.C. 20402. Stock No. 004-000-00345-4.

NOTE: In order to maintain compliance with the limits of a Class B digital device, 3Com requires that you use quality interface cables when connecting to this device. Changes or modifications not expressly approved by 3Com could void the user's authority to operate this equipment. Refer to the manual for specifications on cabling types.

FCC DECLARATION OF CONFORMITY

We declare under our sole responsibility that the

Model:	**Description:**
3C905C-TX	EtherLink 10/100 PCI for Complete PC Management Network Interface Card
3C905C-TX-M	EtherLink 10/100 PCI for Complete PC Management Network Interface Card

to which this declaration relates, is in conformity with the following standards or other normative documents:

- ANSI C63.4-1992 Methods of Measurement
- Federal Communications Commission 47 CFR Part 15, subpart B
  15.107 (e) Class B Conducted Limits
  15.109 (g) Class B Emissions Limits

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